

DAVID BUDLONG TYLER



The BAY & RIVER

Delaware

A PICTORIAL HISTORY



CORNELL MARITIME PRESS

THE BAY AND RIVER DELAWARE A PICTORIAL HISTORY By DAVID BUDLONG TYLER

FROM its earliest recorded discoveries the history of the Bay and River Delaware has been as one. Due to this unity the Bay and the River are treated as a unit, as is their history which has a unity that overlays their parts. The River forms the boundaries between Pennsylvania and New Jersey, and between Pennsylvania and New York, while the Bay separates New Jersey from Delaware. At the same time the people of these states meet at the Delaware: its beaches and resorts; its fresh water vacation spots; in its cities and in the normal passing from one side, or from one state to the other. The River itself stretches for 296 miles from its sources to the Bay. In this distance the river differs radically as does its history. The Bay differs from the River, as does its history, yet they are a unit.

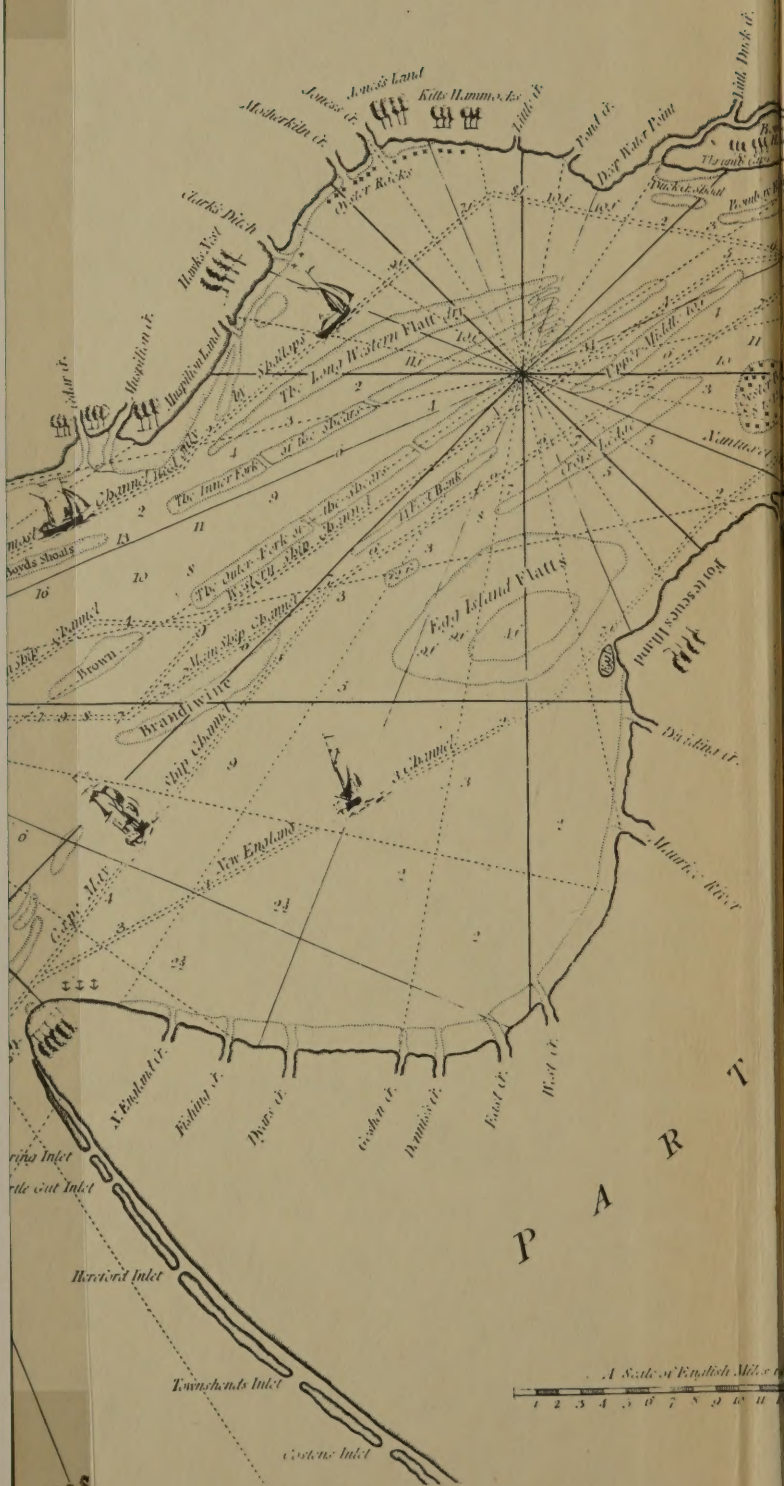
The first recorded discoveries date back to 1609 when the Dutch and English first laid eyes on the "Suydt" River, so named by Henry Hudson, who was searching for the North River and the Northwest Passage, and "Cape Mey", so named by an early Dutch Explorer of that name. Later the Bay was to receive the name De La Warre, after Lord De La Warre, then (1610) governor of Jamestown. The first colonial settlements were made by the Dutch and were forts which served as trading posts. Later on, the Swedes did the actual first colonization, only to lose control to the Dutch, who in turn lost it to the English.

At the time of the War of Independence the Delaware area was the center of the Revolution, with Philadelphia the Colonial capitol and the birthplace of America's Navy.

The first boatbuilding "european style" was started by the Dutch who needed boats and rafts for their trading. The boatbuilding and shipbuilding trade developed until the area between Wilmington and Philadelphia was known as the American Clyde. The major portion of shipping coming into the Bay and River through the years has been the cargo trade. The development of this phase of the Bay and River's history is fully treated in pictures, captions and text, as is the development of industry and population growth along the river's banks from the vicinity of Wilmington to Trenton.

The Bay's naval battles, blockades, privateers, pirates, maritime disasters, steamboating and excursioning are each given proper pictorial treatment.

The River from above the "Falls" at Trenton is very fully covered. Its lumber and other industries whose products were transported on the river are pictured. Its position of eminence as a thing of beauty, vacationland and sportsman's paradise is enhanced by the coverage given it in this magnificent pictorial history.



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CHART
of
DELAWARE BAY AND RIVER,
containing

A full and exact Description of the Shoals, Creeks,
Harbours, Soundings, Shoals, Sands, and Bearings of the
most considerable Land Marks &c. &c.

Authentically copied
From that Published at Philadelphia.
By

JOSHUA FISHER,

Together with the Tide Table from the
CAPIES TO PHILADELPHIA,
and the SET of the TIDE in the
Several Quarters of the FLOOD and EBB.

TIDE-TABLE.

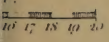
Moon	SE by E.	makes Full Sea at	Cape May.
	SE.		Cape James.
	SE & E.		Bonny Hook.
	S by E.		Rocky Island.
	S.		New Castle.
	SE & E.		Chester.
	SE.		Philadelphia.

Setting of the Tide within the Bay near the Capes.

First Quarter Ebb. A. B. W. B.
Second to last Quarter. A. W. B. E.
First Quarter Ebb. E. S. E.
Second to last Quarter. S. S. E.

The Soundings are taken at Low Water, those marked F are Feet & those without are Fathoms.

At spring Tide the Flow is from 6 to 7 Feet, & up Tides from 14 to 34, but varied by the Winds.

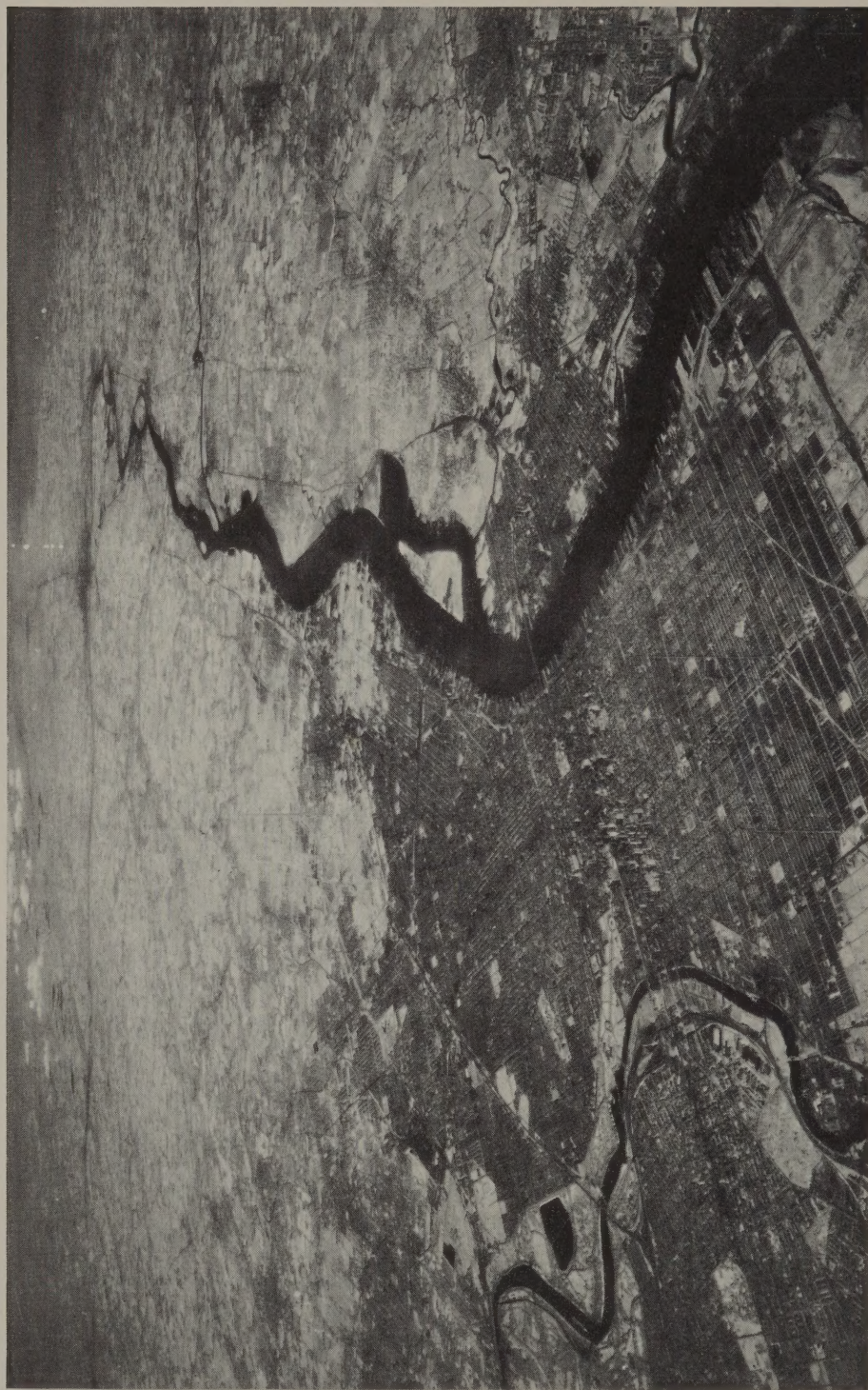


London Print. for R. B. Smith, in Bond Street, near the Strand, 1807.

THE BAY AND RIVER

DELAWARE

A PICTORIAL HISTORY



From 20,000 feet above Philadelphia the line of the Delaware River from Trenton to that city is clearly visible. The upper reaches of the River above the abrupt turn at Trenton can also be seen. In the left foreground is the Schuylkill about to join the larger River at a point beneath the camera. This photograph was taken by Army Air Force officers Capt. A. W. Stevens and Lieut. J. D. F. Phillips. (Air Force Photo.)

The BAY & RIVER
Delaware
A PICTORIAL HISTORY

By
DAVID BUDLONG TYLER

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Contents

I. DISCOVERY AND FIRST SETTLEMENTS

(1609-1664)

Hudson's <i>Half Moon</i>	4	Lindeström map of the Delaware.....	9
<i>Kalmar Nyckel</i>	4	Indian family	10
Queen Christina	5	Indian canoes	10
Johan Printz	5	Fort Christina	11
Vingboon's map	6	Peter Stuyvesant	11
Farrer map	7	Fort Casimir	12
Plan of "Christinehamn"	8		

II. THE COLONIAL PERIOD

(1664-1770)

Lord De La Warre	16	Old Swedes Church, Wilmington	19
William Penn	16	Batteaux	20
Philadelphia waterfront, <i>ca.</i> 1720	16, 17	Durham boat	20
Dock Creek	17	Blue Anchor Tavern	21
Penn at Treaty Elm	18	Blackbeard the pirate	22
Philadelphia waterfront, <i>ca.</i> 1753	18, 19		

III. THE WAR OF INDEPENDENCE

(1770-1783)

Tea ship <i>Polly</i> broadside	27	Battle of Mud Island	31
Gondola model	28	Barriers at Fort Island.....	32
Captain John Barry	29	Plan of attack on Mud Island	32
Frigate <i>Alliance</i>	29	Chevaux de frise	32, 33
Trenton Battle Monument	30	Map of Philadelphia, 1778	34
Washington Crossing the Delaware	30	Brig <i>Nancy</i>	35
Fort on Mud Island	31	Destruction of the <i>Augusta</i>	36

IV. THE FIRST YEARS OF INDEPENDENCE

(1783-1815)

Plan of Philadelphia, 1762	39	Burning of frigate <i>Philadelphia</i>	45
Cape Henlopen Light	40	Robert Morris	46
New Castle, 1797	40	Stephen Girard	46
Early view of Wilmington	41	Ship <i>Superior</i>	47
Sailing notices	41	Ship <i>Lancaster</i>	47
Brandywine mills	42	Frigates <i>United States</i> and <i>Macedonian</i>	48
Ship <i>American Eagle</i>	42	Brig <i>Tryphena</i>	48
Boatyard at Treaty Elm	43	Ship <i>Asia</i>	49
Joshua Humphrey's shipyard	43	Launching of frigate <i>Guerriere</i>	49
Philadelphia waterfront, early 19th century..	44	Lehigh River ark	50
Arch Street, Philadelphia	44	Joseph Bonaparte house	50
Ship <i>Betsey</i>	45		

V. INTRODUCTION OF STEAM PROPULSION

(1790-1819)

John Fitch	53	Market Street Bridge	57
Fitch's model	53	Team ferry	58
Fitch's first steamboat	53	Camden ferry landing	58
Fitch's third steamboat	54	Plan for bridge to Windmill Island	59
Oliver Evans	54	Philadelphia waterfront, 1810	60
Evans' dredge on land	55	Ferry near the Water Gap	60, 61
Evans' dredge on water	55	Steamboat <i>Phoenix</i>	61
Model of Evans' dredge	56	Map of Philadelphia, 1802	62
Gray's Ferry Bridge	57		

VI. CANALS, STEAMBOATS, AND RAILROADS

(1815-1850)

Chesapeake & Delaware Canal broadside ..	65	Philadelphia waterfront, 1836	72
New Castle, ca. 1820	65	Market Street, 1837	72
New Castle & Frenchtown Railroad broadside ..	66	View from Walnut Street wharf	73
Ericsson Line advertisement	66	Steamboat <i>Trenton</i>	73, 75
Map of Ericsson Line	67	Bordentown steamboat landing	74
Salem excursion advertisement	68	Steamboat <i>William Penn</i> at Bordentown ..	74
Steamboat <i>Clifton</i>	68	Burlington waterfront	75
John Ericsson and friends	69	Burlington Steam Sawmill	75
Steamboat <i>Robert Morris</i>	69	St. Mary's Hall	76
Schuylkill water-works lock entrance	70	Florence, N.J.	76
Steamboat <i>Philadelphia</i>	70	Trenton, 1850	77
River scene at Philadelphia	71	Point Pleasant, Pa.	77
Waterfront at Market Street	71	The Delaware at Lumberville, Pa.	78

VII. THE PROBLEMS OF SAIL

(1815-1850)

Old breakwater	81	Ship <i>Tonawanda</i>	87
Early pilot boat	81	Ship <i>Monongahela</i>	88
New Castle broadside, 1836	82	Barque <i>A. L. Harvey</i>	88
River frozen over, 1852	83	Ship <i>William Penn</i>	89
River frozen over, 1856	83	Ship <i>Shackamaxon</i>	89
Tinicum Quarantine Station	84	U.S.S. <i>Delaware</i>	90
Philadelphia waterfront, ca. 1850	84	U.S.S. <i>Pennsylvania</i>	91
Delaware Avenue, 1866	85	Whaling log of the <i>Lucy Ann</i>	92
Ship <i>Lovely Matilda</i>	85	Whaling scenes	92, 93
Ship <i>Thomas P. Cope</i>	86	Ship <i>Manitou</i>	94
Cope Brothers	86	Floating Church of the Redeemer	94
Ship <i>Phoenix</i>	87		

VIII. IRON AND WAR

(1844-1870)

Philadelphia waterfront, ca. 1850	98	Arrival of troops at Philadelphia	106
Harlan & Hollingsworth plant	99	U.S.S. <i>New Ironsides</i>	107
Steamboat <i>Bangor</i>	99	Ship <i>John Boulton</i>	107
Wilmington, ca. 1840	100	League Island Navy Yard, 1874	108
Explosion of steamboat <i>Alfred Thomas</i>	101	U.S.S. <i>Princeton</i>	109
Burning of ferryboat <i>New Jersey</i>	102	Rear Admiral Samuel F. du Pont and Staff ..	110
Wilmington, ca. 1861	102	Rear Admiral John A. Dahlgren and Staff ..	110
Water Gap, 1860	103	Fort Delaware	111
Tammany Fish House	103	Prisoners arriving at Fort Delaware	111
Steamboat landing at Cap May	104	Trenton Delaware Bridge	112
Shorefront at Cape May	105	Tasker Iron Works	112
Cape May beach	106		

IX. PEACETIME ACTIVITIES

(1870-1890)

Rafting on upper Delaware	115	Sailboats near Philadelphia	120
One of the last rafts	115	Rowing on Schuylkill	120
Raft at Foul Rift, N.J.	116	Sailboat racing	121
Rafting crew	116	Cup defender <i>Volunteer</i>	121
Masthope cable ferry	116	Rail and reed bird shooting	122
George F. Barrett Sawmill	117	Cohansey Lighthouse in fair weather	122
Cobblestone picker	117	Cohansey Lighthouse in storm	123
Oyster boats at Philadelphia	118	Schooner at Salem, N.J.	123
Fish House at Gloucester, N.J.	118	Schooner <i>Caroline Hall</i>	124
Sketches of watermen	119	Steamboat <i>Thomas Clyde</i>	124
Shad fishermen	119	Steamboat <i>Major Reybold</i>	125

(IX cont.)

Steamboat <i>John A. Warner</i>	125	Launching at Cramp's shipyard	132
Steamboat <i>Columbia</i>	126	Cruiser after launching	133
Steamboat <i>Cape May</i>	126	Battleship <i>Iowa</i> before launching	133
Steamboat <i>Brandywine</i>	127	Battleship <i>Iowa</i> after launching	134
Steamboat <i>City of Chester</i>	127	Abbott's shipyard	134
Steamboat <i>Mary Morgan</i>	128	E. C. Moore shipyard	135
Shipyard work group	128	Schooner <i>George May</i> after launching	135
Tug <i>José Gonzales</i>	129	<i>Dorothy Belle</i> on Maurice River	136
Steamboat <i>Samuel M. Felton</i>	129	Port of Smyrna, Del.	136
John Roach	130	Steamboat <i>J. V. Craven</i>	136
Roach's shipyard	130	Steamboat <i>City of Milford</i>	137
Steamboat <i>Pilgrim</i>	131	A river steamboat	137
Launch of steamboat <i>Tinicum</i>	131	Iron Pier at Lewes, Del.	138
William Cramp	132	Henlopen Light and Maritime Exchange Station	138

X. TURN OF THE CENTURY

(1890-1910)

Covered bridge at Deposit, N.Y.	141	Menhaden boats	156
Log bridge	141	Lewes harbor of refuge	157
Kittatinny Hotel	141	Old breakwater	157, 158
Canoeists near Cochection, N.Y.	142	Pilot schooner <i>J. Henry Edmunds</i>	158
Shooting Cochection Falls	142	Pilot coming aboard	159
Trenton canoe clubs	143	Pilot steamboat <i>Philadelphia</i>	159
After the spring freshet	143	Steamboat <i>Twilight</i>	160
Sailing canoe	144	Spring freshet at Fish's Eddy, N.Y.	160
Racing off Corinthian Yacht Club	144	Ice at Burlington	161
Tuckup	145	Ice jam at Gloucester	161
Queen Anne pier, Lewes, Del.	145, 156	Thompson's Hotel	162
Rehoboth beach, Del. ca. 1890	146	City Ice Boat No. 3	162
Rehoboth beach, Del. ca. 1905	146	Camden ferry in winter	163
Delaware & Hudson Canal	147	New Castle ice harbor	163
Aqueduct at Lackawaxen, Pa.	147	Pilot boat <i>E. W. Tunnell</i>	164
Canal boat on aqueduct	148	Schooner aground near Chester	164
Delaware Division Canal overflow	148	Barton's boatyard	165
Port Delaware	149	Schooner <i>Rosa Lambert</i> on the ways	165
Canal at Morrisville, N.J.	149	Schooner <i>Calhoun E. Ross</i>	166
Crosswicks Creek	150	Schooner <i>Albert R. Paul</i>	166
Entrance to Delaware & Raritan Canal	150	Steam yacht <i>Nourmahal</i>	167
Steam canal boat <i>Vesper</i>	151	Steam yacht <i>Niagara</i>	167
Camden ferry landing	151	Monitor <i>Amphitrite</i>	168
Sharpless Dyewood Mills	152	Roach's shipyard	168
Ferry <i>Dolly Spanker</i>	152	Steamship <i>St. Louis</i>	169
Canal entrance at Delaware City	153	Battleship <i>Retvizan</i>	169
Yacht <i>Roxana</i>	153	U.S.S. <i>Brooklyn</i>	170
Packet Alley, ca. 1900	154	U.S.S. <i>Massachusetts</i>	170
Ship-chandler's store, ca. 1890	154	Gunboat <i>Alvarado</i>	171
Shad skiffs	155	Launch of steamship <i>M.S. Dollar</i>	171
Shad nets drying	155	Cruiser <i>Olympia</i>	172
Sturgeon skiffs	156		

XI. THE AMERICAN CLYDE

(1910-1930)

Brandywine Shoal Lighthouse	175	Cramp's shipyard	179
Steamboat <i>City of Wilmington</i>	175	Hog Island under construction	179
Wilson Line pier	176	Hog Island wet basin	180
Tanker <i>Delaware Sun</i>	176	Hog Island's fifty ways	180
Steamboat <i>Penn</i>	177	Submarine chasers	181
Tomato barges	177	Cramp's dry dock	181
Lumber schooners	178	Riveter	182
C. & D. Canal in wartime	178	Laying keel of <i>Saratoga</i>	182

(XI cont.)		Treasure Island	190
Launch of <i>Quistconck</i>	183	Trenton Municipal Dock	190
U.S.S. <i>Saratoga</i>	183	Abandoned canal	191
Steel shipbuilding	184	League Island Navy Yard, 1919	192
Wooden shipbuilding	184	U.S.S. <i>Delaware</i>	192
Naval reservists at Cape May, 1918	185	Coal piers	193
Seaplane taking off, Cape May, 1918	185	River traffic at Philadelphia	193, 194
Hammerhead crane	186	Market Street ferry, 1919	194
Shipyard workers	186	Gloucester Point	195
Concrete ship breakwater	187	Sturgeon and shad skiffs, 1919	196
Barge construction	187	Cape Henlopen Lighthouse undermined	196
Ferryboat construction	188	Remains of Cape Henlopen Lighthouse	197
Jackson & Sharp Wharf	188	Enlargement of C. & D. Canal	197
Shipment of railroad cars	189	Construction of Philadelphia-Camden	
Schooner construction	189	Bridge	198

XII. THE RECENT PAST

(1930-1950)

Ship <i>John Shoal</i> Light	201	Model of <i>De Braak</i> prototype	209
Oyster fleet at Leesburg, N.J.	202	S.S. <i>Morro Castle</i>	209
Oyster fleet at Little Creek, Del.	202	Destroyer Escort <i>Senegalais</i>	210
Edward B. Cobb, sailmaker	203	Steamboat <i>City of Washington</i>	210
Frank Lore, blacksmith	203	Delaware Bay Shipbuilding Co.	211
Schooner <i>Cashier</i>	204	Steamboat <i>Dixie</i>	211
Schooners dredging oysters .. 204, 205, 207, 208		Tanker blocking C. & D. Canal	212
Captains John Wheaton and Wyatt Miller ..	205	Work on motor vessel <i>Boston Belle</i>	212
Sorting crabs	206	New Castle-Pennsville Ferry	213
King crabs	206	Delaware Memorial Bridge	213, 214
Oyster patrol boat <i>J. Hammitt Lake</i>	208	Philadelphia-Camden Bridge	214

XIII. THE DELAWARE TODAY

Above Hancock, N.Y.	218	Fort Delaware	230
Toll bridge at Minisink Ford, N.Y.	218	Former ship-chandler's store	231
Hawks Nest Road, N.Y.	218	Hancock's House	231
Toll bridge at Water Gap	219	Liston House	231
Tri-State Marker	219	Battery Park, Delaware City	232
Covered bridge	219	Chesapeake & Delaware Canal	232
Boating at Belvidere, N.J.	220	Lift bridge at Deep Cut	232
Swimming instruction	220	Long's boatyard	233
Replica of Durham boat	221	Oyster boats at Greenwich, N.J.	233
Washington's Crossing	221	Fishing boats at Lewes, Del.	233
Fairless plant	222	Oyster boats at Bivalve, N.J.	234
Ore carriers	222	Bower's Beach, Del. wharf	234
Pennsbury Manor	223	Duck hunters	235
Turnpike bridge construction	223	Muskrat trapping	235
Air view of Philadelphia waterfront	224	Pilot boat <i>Philadelphia</i>	236
Treaty Elm Park	224	Pilot climbs aboard	236
Ribs of frigate <i>Augusta</i>	225	New breakwater and lighthouse	236
Remains of Chevaux de Frise	225	Lightship <i>Relief</i>	237
Junction of the Schuylkill and Delaware Rivers	226	Cape May Lighthouse	237
Remains of Hog Island	226	Marina at Cape May City	237
Sun Shipbuilding Yard	227	Concrete ship breakwater	237
Sunoco Refinery	227	Students collecting marine specimens	238
Chester-Bridgeport Ferry	228	University of Delaware Marine Laboratory motorboat	238
Supertanker S.S. <i>Delaware Sun</i>	228	Army Engineers' model of the Delaware River	239
Wilmington Marine Terminal	229	Commercial Museum, Philadelphia	240
Fort Christina State Park	229		
The Delaware below Memorial Bridge	230		

Foreword

TO OUR forefathers the Delaware was an entranceway and a highway in the wilderness. It also made a convenient boundary for land grants and political divisions. It has provided a living for some, a means of communication for many, and a source of unceasing interest for those who have lived close by. For engineers it has been a "water-level" route through difficult terrain or an obstacle that must be bridged. Baymen look out through the Capes at the beckoning sea and seamen look into the Bay at the allurements of dry land.

This pictorial history of the Bay and River, Delaware, reviews the many uses to which these waters have been put and the many ways in which they, in turn, have affected the people who have used them. It is a long, a three hundred mile stretch, from the source to the Capes. The River differs radically above and below the "falls" at Trenton and so also does the River differ from the Bay. Their history includes not only the changes taking place over a period of time but also changes affecting only particular parts of the Bay or River. This necessitates a frequent shift of attention from one part of this waterway to another. Yet the Bay and River are a unit and their history has a unity which overlays the history of their parts.

The pictures tell the history. The words are merely a framework to place the pictures in logical sequence and a cement to hold them together. Obviously many desirable pictures have not been discovered and the pictures which have been used naturally emphasize their particular subjects. There is no escape from this difficulty in a pictorial history for the author cannot know all private sources nor can he go out and photograph something which no longer exists.

The advantage of a pictorial history, in this busy age, is that it can be looked at quickly and piecemeal. It also has the advantage that it rescues some pictures which might otherwise become lost to view. A book about the Delaware can help to remind people of the River's basic unity. The River forms the boundary between Pennsylvania and New York and Pennsylvania and New Jersey while the Bay separates Delaware from New Jersey. At the same time the peoples of those States meet at the Delaware in which they have a common interest. It is hoped that this book will help to emphasize that common interest and introduce, so to speak, the people at one end to those at the other.

D.B.T.

Newark, Delaware



Acknowledgments

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This special kind of indebtedness I would like to acknowledge here. For the time and opportunity to undertake this work I must thank Henry B. du Pont, who has a deep-sea sailor's interest in maritime history and a native Delawarean's affection for the River and Bay. Through his official connection with the University of Delaware I have been invited to that institution in the capacity of a visiting professor on leave of absence from Wagner College, Staten Island, N. Y. The University Administration and Faculty have afforded me without stint all library or other aid for which I have had need.

The project itself was suggested by M. V. Brewington whose pictorial maritime history of Chesapeake Bay has set a high standard for such a work. Marion Brewington has given freely of his time and knowledge in any way—and there have been many—in which he could be helpful.

A third person whose help is hard to measure or express in words has been my wife, Katharine Haskell Tyler. She has not only been long-suffering, as all wives in such a situation must be, but has aided materially in searching, researching, and suggesting layouts which she can do with an artist's eye.

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I

Discovery and First Settlements

(1609-1664)

THE Delaware River, in post-glacial times, cut its way through the Water Gap, made a right-angled turn when confronted by the high land at present-day Bordentown, and then flowed along the edge of the Piedmont Plateau until the gradual tilt of the land, below New Castle, caused it to swerve towards the east and its outlet in the Atlantic. The Delaware's course, after it leaves the Piedmont and becomes slow-moving tidal water, makes it a broad sixty-mile thoroughfare directly along the line of travel connecting eastern population centers. This, on the map, is the line which extends from New York harbor to the upper end of Chesapeake Bay. A less amenable river might have forced its way directly to the Atlantic and, in the process, cut New Jersey in half, turned Barnegat Bay into an estuary and left the site of Philadelphia literally high and dry.

Such a might-have-been is only important in that it helps to explain the concentration of population and industry along the sixty-mile stretch of the Delaware from Trenton to Wilmington. This was and is a natural travel route. Indians rode on it in canoes and their trails paralleled its banks. Today ocean vessels follow its channel and railroads and highways parallel its shores. Airplanes are guided by it.

For the air traveler, on a clear day, this configuration of the river is plain to see. But the first Europeans to arrive in this hemisphere had no such opportunity. It is likely that the Florentine Verrazano, sailing for the French in 1524, failed to see even the river's mouth as he sailed up the coast to New York. Hudson, in 1609, saw it and anchored for the night at the entrance. Preferring not to take any chances with shoal waters, he left this "South" river, as he called it, and sailed on to the one he called "North," which he explored. In sailing-ship days the protected inner harbor of New York was much more inviting than the funnel-like estuary of the Delaware, which provided no protection from strong easterly winds.

Hudson's overnight stop became the basis for his Dutch employers' claims in this area. In the same way, the prior voyages of John Cabot laid the basis for his English employers' claims to the whole eastern seaboard.

The most experienced navigators of these times were usually Florentines, Genoese, Venetians, and Portuguese. Their chief backers were merchant companies organized in the rising and vigorous Atlantic nations, such as Holland, England, and France. The Dutch East India Company sent out Henry Hudson and the Dutch West India Company sought to profit from his discoveries by establishing trading posts in the Hudson and Delaware valleys. A fort for fur-trading purposes was established at Nassau (near the present Gloucester, N. J.) in 1623 and another at Swanendael (the present Lewes, Del.) in 1631. The former was abandoned after three years. The latter was wiped out by the Indians during its first winter.

Dutch maps of this period use the name "Suydt" (South) for the River and the name of a leading patroon, "Godyn," for the Bay. A Dutch explorer, Cornelius Mey, had his first and last names attached to the Capes at the entrance to the Delaware and the name "Hindelopen," of obscure origin, to a point of land farther south along the coast. The name "Hindelopen" eventually moved up on the map, displacing "Cornelius" and becoming "Henlopen" in the process. With a slight change in spelling, the name "May" has stuck firmly to the upper or northern Cape.

The vigor and permanency of the American settlements in the 17th century were dependent upon support from the homelands and that, in turn, was dependent upon the political conditions of the moment. During the first half of that century Sweden was a leading power and a Swedish Company, with the government's help, sent an expedition to the Delaware in 1638. It was commanded by Peter Minuit, formerly employed by the Dutch at New Amsterdam, and it consisted of two vessels, the *Kalmar Nyckel* (*Key of Kalmar*) and the tender *Grip* (*Bird-Grip*). A landing was made at a rock outcropping up a branch river, later named "Christina," after the infant princess who succeeded her father, Gustavus Adolphus, on the throne of Sweden. This rock outcropping extends from the Piedmont into the the marshlands and is a part of the higher land which causes the River to swerve into the Bay and then the Ocean. It is also the site of the city of Wilmington.

Before the members of Minuit's expedition settled ashore, they brought aboard ship five Indian chiefs with whom they made a deal. In exchange for some glittering merchandise they acquired title to lands extending down-river to Bombay Point, where the Dutch had a claim, and up-river to the Schuylkill, a river whose name, meaning "Hidden Creek," had been given to it by a Dutch explorer. The westward boundary of this purchase was indefinite. Once ashore, the Swedes and some of their Finnish friends proceeded to build a log fort and log cabins. This was the introduction in America of a type of structure admirably suited to frontier life and one which became a symbol of democracy.

The Dutch were slow to do anything about these Swedish interlopers. Their prolonged struggle with England, where Swedish friendship was needed, was a factor. The marshland mosquitoes were sufficient to discourage a Swedish attempt to establish a fort at Elfsborg (now Elsinboro Point) on the east bank of the River. In 1651, however, the Dutch built a fort of their own, Fort Casimir, located at present-day New Castle and about four miles below Fort Christina. Printz, governor of New Sweden, who resided at Tinicum Island (Essington), protested loudly but without effect. His successor, Governor Rising, upon his arrival in 1654, brought the guns of his ship to bear upon the unprepared garrison at Fort Casimir, and forced it to haul down the Dutch flag. This occurred on Trinity Sunday and so the Swedes renamed the fort "Fort Trinity."

At this juncture Holland was concluding a war with England. In about a year's time Governor Stuyvesant of New Amsterdam was able to retaliate. He sent a fleet of seven vessels, including four warships. The garrison of the Swedish forts surrendered without fighting. Governor Rising was allowed to march with his officers and men out of Fort Christina "with drums and trumpets playing, flags flying, matches burning." They marched out for good. Those who remained took an oath of allegiance to the States-General of Holland.

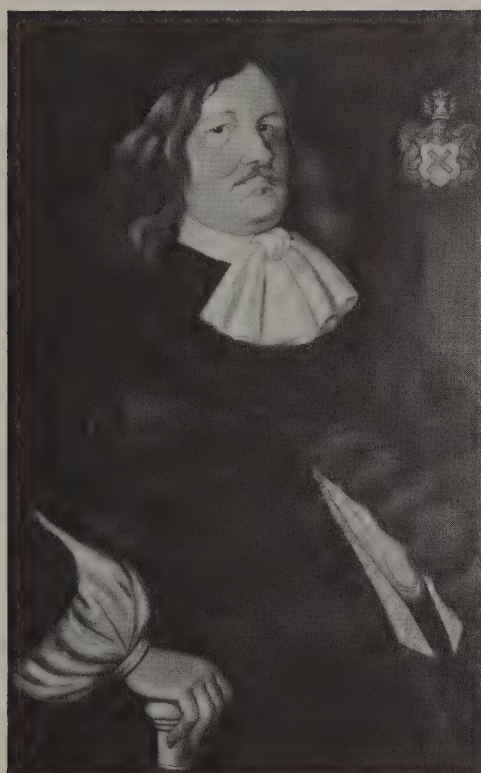


Henry Hudson's *Half Moon*, an eighty ton vessel with a crew of seventeen Dutch and English sailors reached the mouth of the Delaware, August, 1609. Drawing from an account by H. G. Van Assum, Amsterdam, 1613. (Courtesy Boston Public Library.)



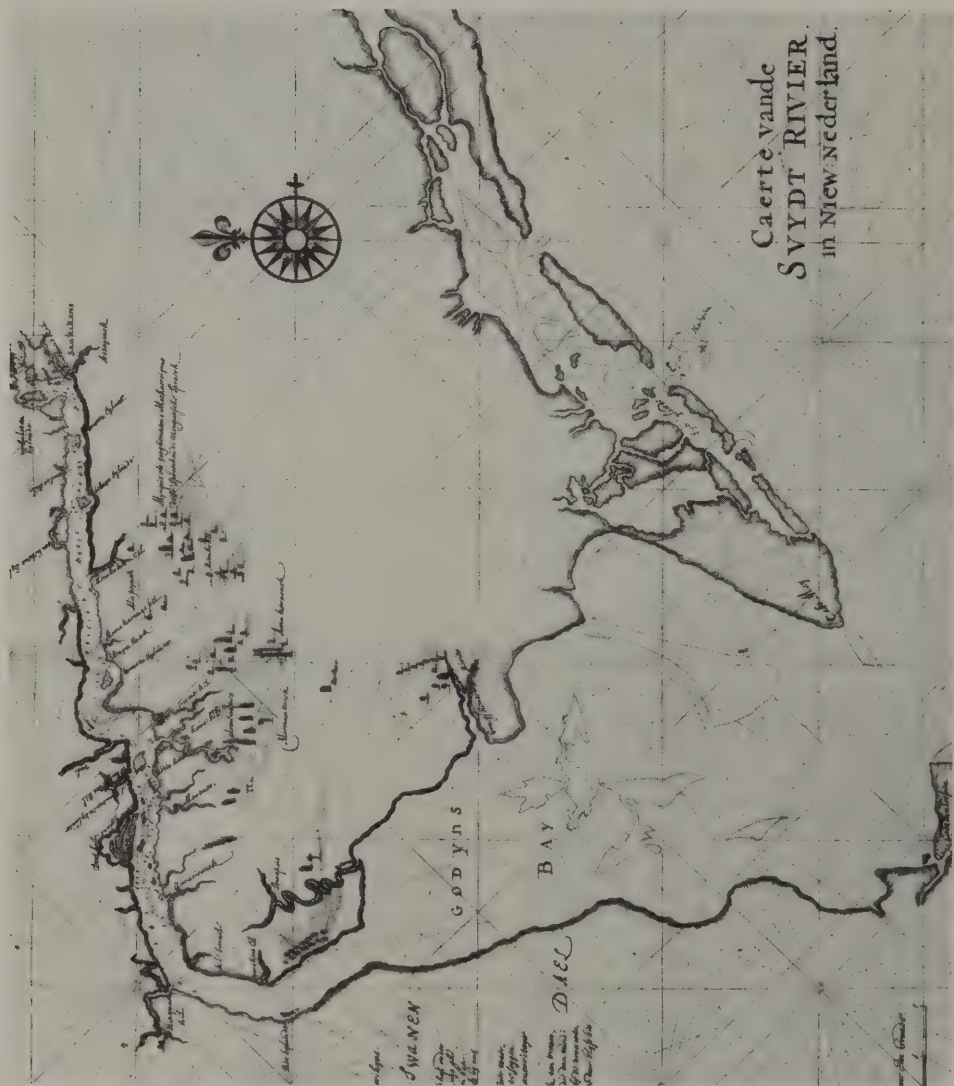
The *Kalmar Nyckel* landed Swedish settlers at the "Wharf of Stones" or "the Rocks" (present day Wilmington). Drawing by Ivan Peterson, 1930. (Courtesy of American Swedish Historical Museum.)

The fort and the branch of the Delaware on which it was located were named by the settlers after their very young Queen Christina. She became queen in 1632, succeeding her famous father, Gustavus Adolphus, "the Lion of the North and Defender of the Faith." Christina was high spirited and, as she grew older, took an interest in New Sweden. (Courtesy of American Swedish Historical Museum.)



Johan Printz, second governor of New Sweden, was known for his great physical bulk and for the energetic and harsh character of his regime. The Indian name for him was "Big Tub." A former cavalry officer, he drove the settlers hard and accomplished much, in spite of limited support from the homeland. For ten years, by means of forts and block-houses, he warded off Dutch and English intrusion. Under his direction the colonists built trading posts, mills, boats, wharves, and undertook small-scale industry in such things as cooperage and weaving. (Courtesy of American Swedish Historical Museum.)

About 1639 Joan (Johannes) Vingboons drew this map for the Dutch West India Company. He was a Dutch cartographer, engraver, and publisher who lived from 1616 to 1670. The Bay was named after the patroon Godyn who supported Captain de Vries' attempt to plant a colony near Cape Henlopen. The colony was called "Zwanen Dael" because of the many wild swans to be seen there. This is a very accurate map for such an early date and includes soundings as far up the River as Trenton. (Courtesy of Library of Congress.)

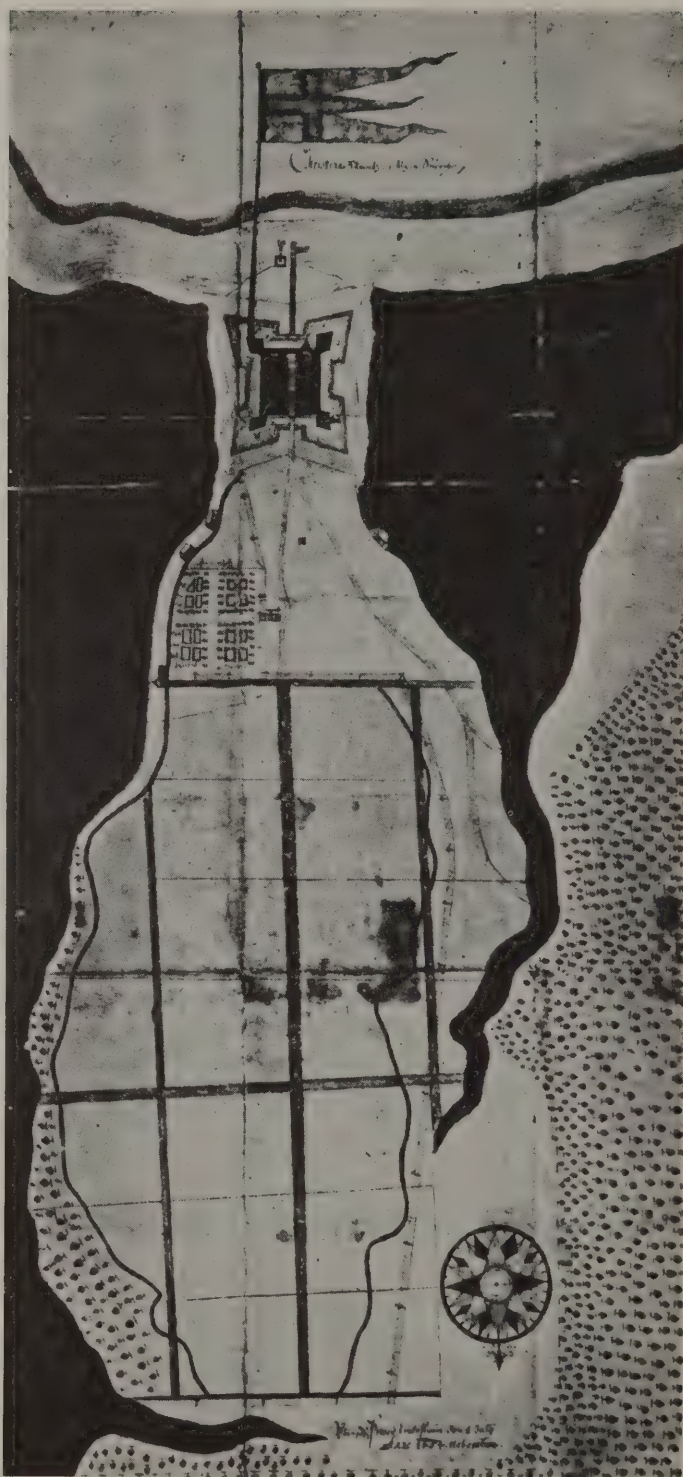


The Sea of China
and the Indies



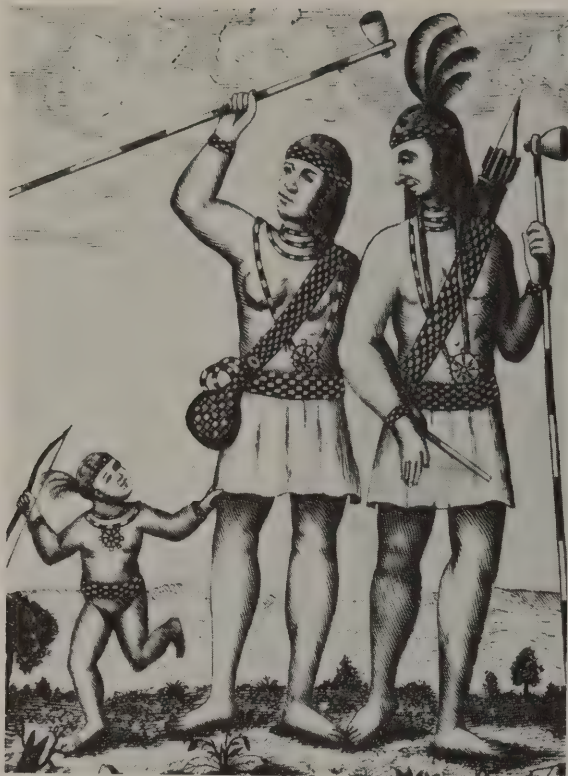
An English map, drawn by Virginia Farrer in 1651, shows complete ignorance of both the Delaware and the Hudson. At that time English interest centered in Virginia. Lord Delaware's name is given to the River, the name of James, Duke of York, to the southern Cape, and Lord Ployden is credited with a "Patten" on the river although "the Sweeds are planted in it and have a great trade of Furs." (Courtesy of New York Public Library, Stokes Collection.)

Peter Lindeström made this plan for the enlargement of the village of "Christinehamn" outside the parapets of the fort and on the site of the present city of Wilmington. The black areas represent the swampy lands which extend back from the river on both sides of the higher land on which the fort at "the Rocks" is located. (From Lindeström's 'Geographia Americae.')





Lindeström also explored and mapped the Delaware. He went up the west bank to the falls (at Trenton) and back down the opposite side visiting every creek and paddling up some for a considerable distance. He labeled all of them with their Indian or Swedish names and noted some of their characteristics. (From Lindeström's "Geographia Americae.")



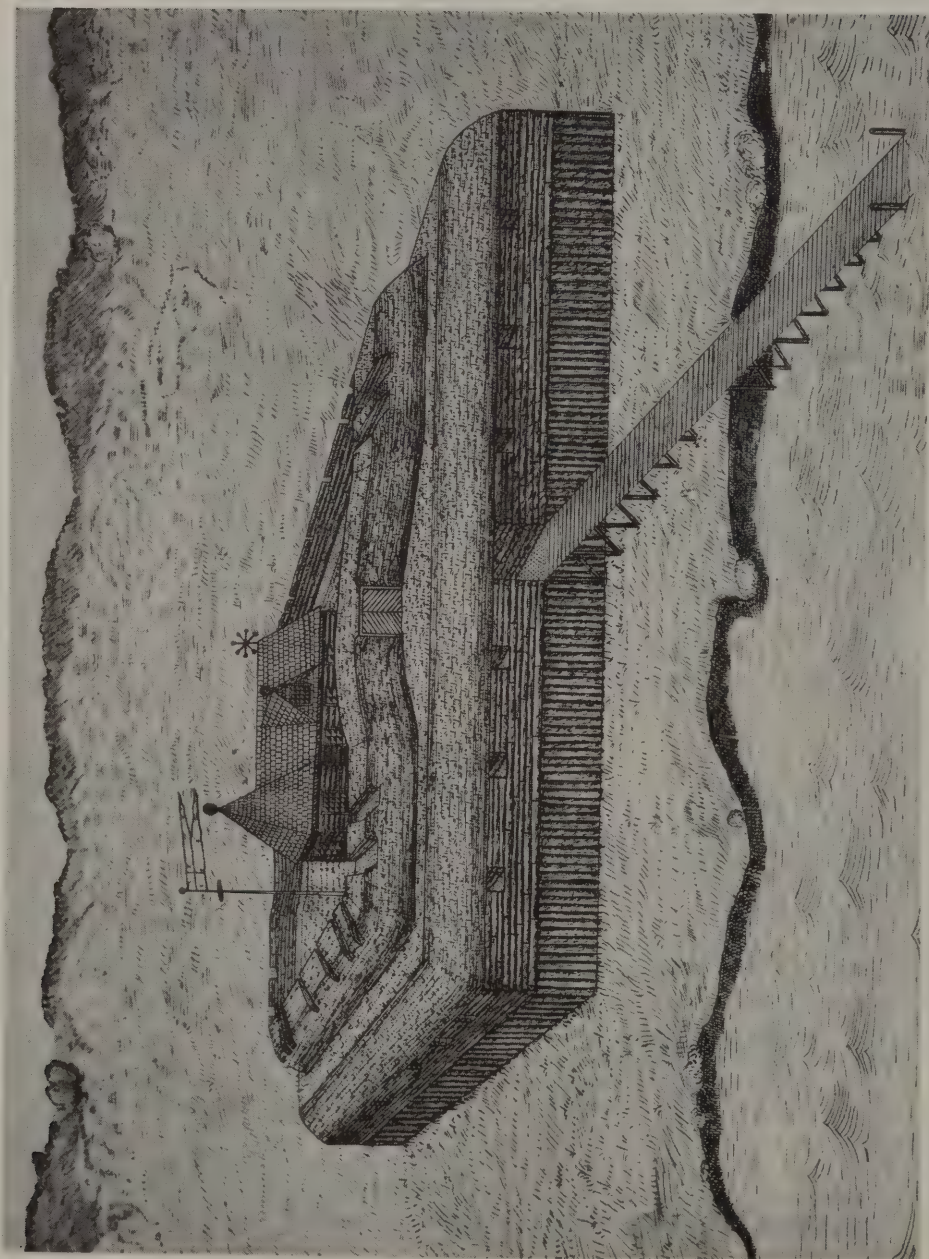
The Indians of the Delaware basin were known as "Delawares," "Lenape," or "Lenni-Lenapes." They were divided into three branches: the Minsi or Minisinks, in the plains above the Water Gap; the Unami, south of the Lehigh; and the Unalachtigo or Turkey Tribe, at the Christina and Brandywine rivers.

They were big and strong and painted themselves with red and white clay, their clothing being "a cloth, about half an ell broad, around the waist down about the hips." Governor Printz considered them to be skillful workers and "good and quick marksmen with their arrows." William Penn noted that they "tread softly—and mostly walk with a lofty chin," that they greased themselves with bearfat, had swarthy skin, little black eyes, and that their "wives are true servants of the husbands." (From Lindeström's "Geographia Americae.")



Indian birch-bark and dugout canoes. Peter Lindeström, an observant young military engineer who came to New Sweden in 1654, has described how an Indian could go into the woods and, single handed, make a dugout canoe in ten to twelve days, his only tools being a hatchet and stones with which to start a fire. Lindeström's notes were published in Stockholm in 1657 and have been translated by Amandus Johnson. (From Thomas Campanius Holm's, "New Sweden.")

In 1651 Peter Stuyvesant built Fort Casimir on the site of the present town of New Castle. It was intended as a check on the Swedes at Fort Christina, four miles up the River. Both Fort Casimir and the earlier and temporary Fort Nassau were named in honor of Count Ernest Casimir of Nassau. (Courtesy of Historical Society of Delaware.)



II

The Colonial Period

(1664-1770)

IN 1664 the English added the Delaware region to their North American holdings. The garrison at New Amstel, the Dutch town which had grown up at Fort Casimir, surrendered after short-lived resistance to an English squadron sent down from New York. The Duke of York became proprietor of the whole coastal region from Canada to the Delaware. Holland was not prepared to succor its American colonies. New Amstel, therefore, became New Castle and, before long, English colonists moved into this region from Virginia, Maryland, and New Jersey.

York's claim could be supported on the basis of Cabot's discoveries and Captain Argall's visit in 1610, when he named the Cape after Lord De La Warre, governor of Jamestown. Although the royal grant to the Duke of York extended only to the Delaware itself, the Dutch holdings on the far side were also appropriated.

At this time the English Parliament had a firm grip on the nation's purse strings. Both King Charles II and the Duke tended to look upon colonial land grants as a painless way to discharge their debts. York proceeded to parcel out the land between the Hudson and Delaware to two of his favorites. One of these, Sir George Carteret, had once provided the Duke with an asylum on the Channel island of Jersey. It was appropriate, therefore, to refer to this area as "New Jersey."

In 1681 William Penn, son of an admiral who had served the royal family faithfully and had died with the Crown owing him £16,000, was given a grant of land across the Delaware from New Jersey. The upper portion came to be known as "Pennsylvania" and the three lower counties became, after the Revolution, the state of Delaware.

Penn wanted a place for the settlement of Quakers, a persecuted group who had won his allegiance. He arrived on the ship *Welcome* in 1682. In a ceremony at New Castle he was presented with the key to the fort and with the "turf and twig, and water and soyle of the river Delaware." After another stop at Upland (Chester) he landed at the spot of his choice just above the Schuylkill, where deep water came close to the River's banks.

One of Penn's first moves was to have a friendly meeting with the Indian chiefs at Shackamaxon (Kensington). That meeting took place under a great tree which came to be known as the Treaty Elm.

Penn was probably America's first town-planner. He mapped out a grid-iron of streets to fill the space from the Delaware to the Schuylkill. Until streets and lots had been laid out, the first arrivals lived in tents or caves dug in the river bank. Within a year twenty-three shiploads of settlers joined this community to which its founder gave the name "Philadelphia."

A small boat basin with a drawbridge at its entrance was made at the point where a small creek entered the river. This was where Penn had stepped ashore from the *Welcome* and found the Blue Anchor Tavern already doing business. The tavern was a natural center of activity in the early days when the River was the main highway. The small creek came to be known as "Dock Creek" and "Dock Street" was made on both sides of it by filling in swampy land. In 1748, the whole creek was arched over, thus making the wide curving Dock Street of today. On a sand island in the river opposite this point, an enterprising miller, John Harding, built a windmill and this island became, of course, Windmill Island.

As population increased, it tended to concentrate where solid banks came to the River's edge, for most of the riverfront was marshland and unhealthy for habitation. Lewistown (Lewes), New Castle, Burlington, Bordentown, and Philadelphia grew up at locations of this kind.

Some towns developed because they were at stopping points along the sixty-mile stretch of river on the much-travelled route from New York to Baltimore. This applies to Trenton and Bordentown at the northeast bend of the River and to New Castle and Wilmington at the southwest bend.

Philadelphia, in the middle of this line of travel, was not merely a stopping-off place but was itself a center of attraction for trade and travel.

On the lower part of the River and on the Bay, population centers were, again, on high or "fast" land. The high land was usually some distance up a creek navigable only by shallow-draft vessels. Dover and Salem were examples of this. These Bay towns were off the main track of travel and, consequently, slow to grow.

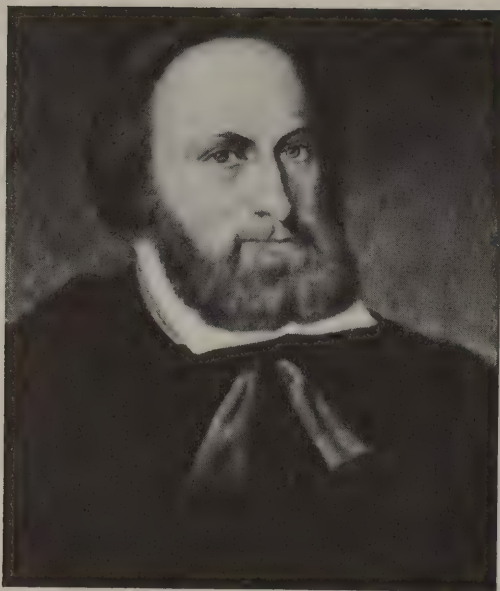
A principal colonial product was flour. The rye and wheat of the hinterland were of high quality and in demand. The Conestoga wagon was developed for grain conveyance. The swift waters of the Schuylkill, the Brandywine, and various creeks supplied power for grinding, and the Delaware was a highway for distribution. After being hauled to mills at such places as Wilmington and Newport, the flour was placed aboard shallops and taken to Philadelphia for consumption or further shipment.

From the beginning, shipbuilding was an important industry. The choice for local transport was between boat and packhorse. One of the first things

imported by the Dutch was a shallop, in knocked-down condition. A shallop was a broad-bottomed, shallow-draft river boat, propelled by oars or sail. By the early 18th century Philadelphia was well supplied with shipyards and ship carpenters, ropemakers, carvers, turners, etc. Practically every creek of any size soon had its own shipyard. The demand for timber, masts, and spars was felt all the way to the Delaware's headwaters where some of the best stands of timber were located and where pioneer farmers, clearing the land, were glad to sell. Logs were floated out to shipyards with each spring freshet.

By the second half of the 18th century, transportation was becoming the business of an increasing number of people. Joseph Borden, Jr., for example, started the first weekly sailing packet line between Philadelphia and Bordentown in 1751. His boats connected with stages to Perth Amboy, where passengers embarked on sailboats to New York. By 1773 faster stage-coaches and improved roads reduced the time of travel between Philadelphia and New York from three days to two. In the opposite direction, sailing packets went from Philadelphia to New Castle where stages carried passengers to Frenchtown and connected with sailing packets to Baltimore.

This river trade and travel was not without danger. There were still hostile Indians inland. Pirates and privateers preyed upon commerce in the Bay and beyond the Capes. Lewistown (Lewes) at Cape Henlopen was particularly exposed and suffered numerous raids. Even New Castle was threatened by a Spanish privateer in 1748 and saved itself only by being forewarned and forearmed. Individual merchant ships were frequently seized, especially in the neighborhood of the Capes. The Delaware became a happy hunting ground for outlaws and irregulars as soon as it was discovered that the Quaker authorities were disinclined to resist and that the English government was slow to protect a proprietary colony. Piracy came to an end by the middle of the century, but privateering and wars were still to come.



Thomas West, Lord De La Warre (Delaware), arrived in Jamestown in 1610, just in time to save that colony from collapse. Later, one of his subordinates, Captain Samuel Argall, entered the river mouth north of the Chesapeake and named the "point of land" Cape De La Warre. As the Farrer map of 1651 shows, the English named both Bay and River after Lord Delaware and the Cape after James, Duke of York. (Courtesy of State Capitol, Richmond.)



William Penn was 38 years old and a Quaker when he first came to America. He was the son of an admiral and, in his youth, served briefly in a military capacity in Ireland, at which time this picture was made. (From Watson's "Annals of Philadelphia.")



This idealized picture of the Philadelphia waterfront was painted about 1720. It is the oldest known painting of that city. Almost nothing is known about Peter Cooper except that he was admitted as a freeman of the city in 1717. At that time the waterfront extended for about a mile along the River and had been built out so that Water



Penn's final landing at this little creek, soon to be known as "Dock Creek," the first public landing place for the new town of Philadelphia. The Blue Anchor Tavern was already there when Penn arrived. He had it moved a few feet to conform with his plan for Front Street. After Front Street was laid out, the drawbridge was built. The creek tended to silt up and, becoming a menace to health, was covered over towards the end of the 18th century. (Both pictures from Watson's "Annals of Philadelphia.")



Street, a new street, was in front of Front Street. The freshness of the water helped to keep ships' bottoms clean, but it also helped the River to freeze over in winter. (Courtesy of the Library Company of Philadelphia.)



George Heap drew this well known view of Philadelphia about 1753. It was published in London by T. Jefferys. An accompanying inscription recounted the virtues of the city and harbor: location on a "high and dry & pleasant Plain;" harbor safe and commodious, having seven or eight fathoms of water at low tide; being thirty miles above salt water, it is free from shipworm; its great distance from the sea and its long and intricate channel makes it a "natural Fortification," to which is added a Battery of 27



Benjamin West's famous picture of Penn's meeting with the Indians under the Elm at Shackamaxon (Kensington) may not be accurate in detail, but it gives a correct portrayal of the good feeling that characterized Penn's relations with the Indians. (Courtesy of the Historical Society of Pennsylvania.)



pieces a little below the city; the city consisting of nearly 2,300 brick dwellings; on a day in 1753 some 117 sea vessels counted in the harbor; exports consisting of wheat, flour, corn, barrels, casks, skins and furs, ginseng, and imports of manufactures, mostly from England.

It was indeed a busy waterfront, as indicated in this picture. (Courtesy of New York Public Library, Stokes Collection.)



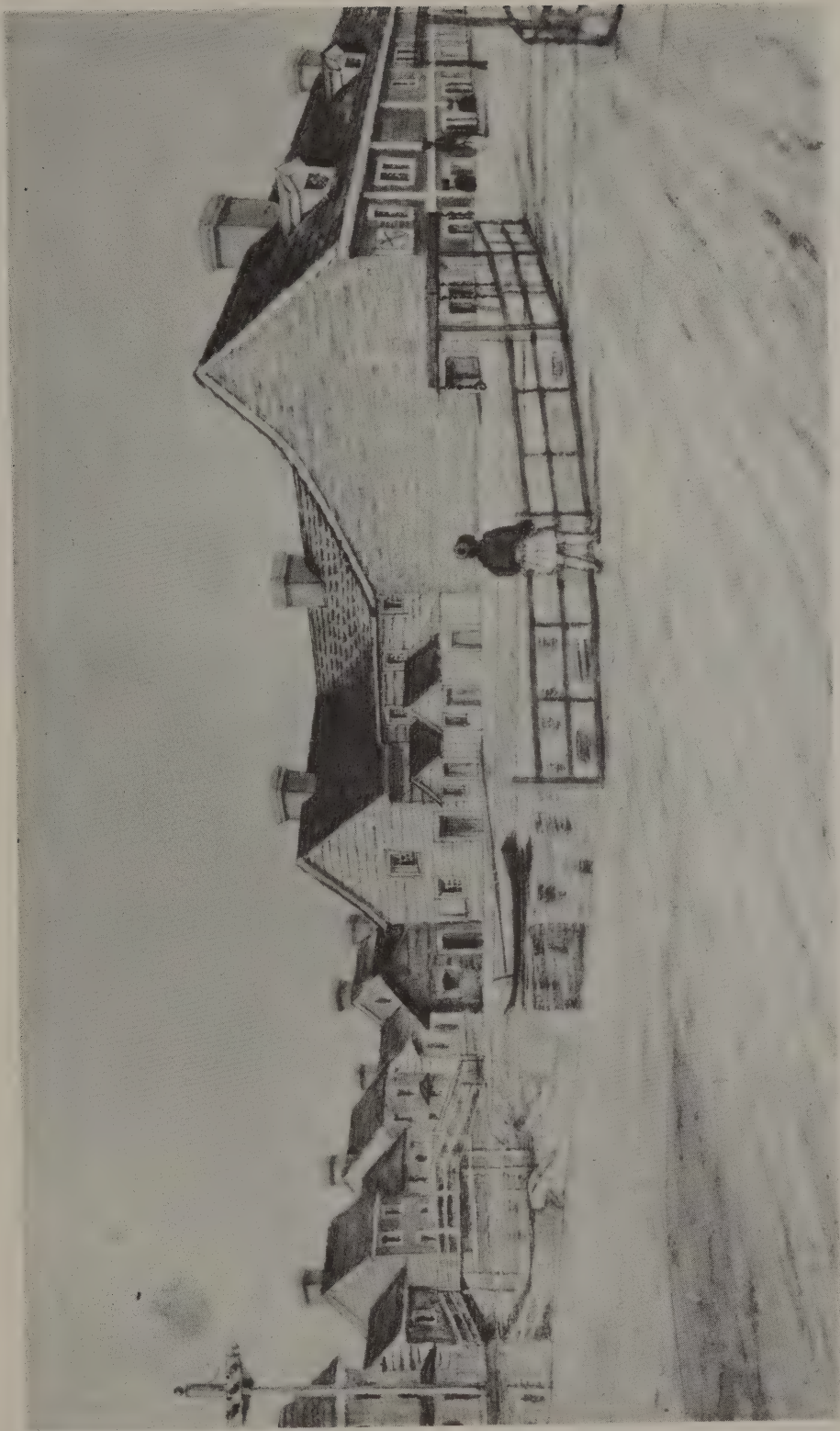
In 1697 the King of Sweden sent three missionaries to minister to the Swedes on the Delaware. Within a year after their arrival, this "Old Swedes" Church was begun at the settlement which was soon to be known as Wilmington while a second church was built on the waterfront at Wiccaco, on the site of a blockhouse, in Philadelphia. Both churches were built near the water since many parishioners came by water from up and down and across the River. (Drawn by Benjamin Ferris and engraved by J. Sartain. From Elizabeth Montgomery's "Reminiscences of Wilmington.")



By the middle of the 18th century, a more or less regular passenger and freight service began on the Delaware using keel boats called "batteaux." They were enlarged skiffs, propelled downstream by long oars or sweeps and upstream by "setting poles." At the time of departure the captain summoned the passengers by blowing a horn. The passengers carried their own blankets to roll up in at night. (From Dunbar's "History of Travel in America.")



One of the oldest iron works in Pennsylvania was founded at Durham in 1727. Its products were shipped out only by way of the Delaware River until a road was constructed to Bristol, about 1745. Robert Durham designed a flat-bottom boat capable of carrying 15 tons down the swift water of the upper river. Until outmoded by canal-boats, the Durham boats were used to transport flour and other products as well as iron. They have been described as being from forty to sixty feet long, six to eight feet wide, and two to three feet deep, with ends somewhat pointed, resembling a canoe. They could be rowed, sailed, or poled. Going upstream they carried a crew of five, one steering, and two on each side pushing with iron shod poles as they walked along the boards which extended the length of the boat. (From a painting by Thomas Birch and engraved by William Strickland about 1826. Courtesy of New York Public Library, Stauffer Collection.)



Dock Creek and the Blue Anchor Tavern. This is the way they looked after the drawbridge was built over the creek and Front Street was raised above the level of the footpath at the entrance to the tavern. The Blue Anchor Tavern was rebuilt twice. Watercolor by an unknown early 19th century artist.
(Courtesy of the Historical Society of Pennsylvania.)



During the last years of the 17th century and the early part of the 18th, pirates were a plague on the Delaware. They found the Quakers more lenient than the governments of the other colonies. Edward Teach, or Blackbeard, was able to buy supplies in Philadelphia and is supposed to have used Blackbird Creek as a hideout. Pirates plundered Lewistown (Lewes) and captured a number of vessels off the Capes. Blackbeard was killed in 1718, after a bloody fight with man-of-war's men sent out by the governor of Virginia. (Courtesy of Harvard College Library, Harry Elkins Widener Collection.)

III

The War of Independence

(1770-1783)

ENGLAND'S insistence upon the tea tax aroused vociferous opposition along the Delaware just as it did in Massachusetts. Broadships promised tar and feathers for any pilot who should hire out to the incoming tea ship *Polly*. When she did arrive, Captain Ayres was persuaded to depart with her cargo untouched. Greenwich, N. J., had a "tea party" of its own. A cargo of tea stored in a Loyalist's cellar was taken out and publicly burned by a party of "Indians."

The movement for independence was nurtured in the valley of the Delaware. When the moment arrived for the critical vote upon the Declaration of Independence, it was Caesar Rodney, a delegate from the lower counties (that is, Delaware), who, by making a spectacular dash to Philadelphia, helped to make the vote unanimous. When fighting began, Philadelphia became the seat of the Revolutionary government.

Before there was a Continental Navy, some of the colonies organized their own "navies." The port wardens of Philadelphia took in channel markers and instructed pilots to serve only colonial shipping. Philadelphia built a fighting ship for itself at the same time that its shipyards fitted out the Continental Navy's first squadron, consisting of the *Columbus*, *Cabot*, *Andrea Doria*, and *Alfred*.

The approach to the port of Philadelphia was guarded by forts just below the city and on opposite sides of the Delaware. Two rows of "chevaux de frise" were sunk in the river below the forts. These underwater obstructions consisted of heavy frames supporting solid beams which slanted upward and were topped with iron points rising to within four feet of the surface to impale a ship's bottom. Pennsylvania's water defenses also included several barges or "gondolas," each capable of carrying a large gun and several rowers.

The Marine Committee of the Continental Congress bought a brig, armed it, and sent it, under the command of Captain John Barry, to clear the Capes of privateers. This ship, the *Lexington*, had the distinction of capturing a British sloop-of-war, the first naval prize of the Revolution. When the English frigate *Roebuck* arrived to block the entrance to the river, the

Lexington eluded her by keeping on the far side of the sandbars and helped colonial vessels to slip out on foggy mornings with cargoes of flour and barrel staves, and to return, sometimes, with guns and gunpowder.

In May, 1776, Col. Henry Fisher, the faithful watcher at Lewes, sent word to Philadelphia that the *Roebuck* with a smaller frigate, the *Liverpool*, and three tenders, had started up the Bay. On May 8th they arrived off Wilmington, having chased the sloop-of-war *Wasp* up the Christina. That afternoon, thirteen Pennsylvania row-galleys appeared from up-river. They bravely fired their cannon at the frigates which replied with their heavier guns. Since the row-galleys presented difficult targets and kept in shoal water, about a mile away from the frigates, most of the cannon-balls, from both sides, splashed harmlessly in the water. The firing stopped at sundown.

Before that time the *Roebuck* had run aground. Her boats rowed a nervous patrol around her all night. The Americans made no attack even when, at low tide, she keeled over so far that the lower gun ports had to be closed. The "gondolas" had run out of shot.

They received powder and balls during the night, but in the morning when firing was resumed, the *Roebuck* was again afloat.

At the end of the second day, the frigates dropped down the river to below New Castle. Their sails and rigging were somewhat tattered and some cannon-balls were embedded in their sides. The fighting had again been at long range with no change in tactics. The English occasionally fired a round of grape-shot at the thousands of watchers who lined both banks of the River.

After stopping at Reedy Island to make repairs, the frigates returned to the Capes where they arrived on May 15th. They had achieved their objective, which was to secure fresh water and to reconnoiter the river defenses. Their experience probably explains why the invading forces, in the following year, avoided the Delaware.

The cat-and-mouse game at the Capes continued. The *Lexington* was joined by the *Wasp* and *Hornet*, two sloops of war whose names were to gain much greater fame when borne by aircraft carriers during World War II. This small flotilla, with the addition of the ship *Reprisal*, stationed itself in the shallow waters of Cape May and gave a daily demonstration of the advantages of fast shallow-draft vessels in such waters.

During a stretch of clear June weather, which made evasion difficult, seventeen American vessels collected at that spot waiting to get out. The British patrol, at this time, consisted of the frigate *Orpheus* and the sloop-of-war *Kingfisher*. On June 27th the American brig *Nancy*, known to have a cargo of powder and arms, was sighted heading in for the Capes. The frigates went for her. The *Nancy* turned towards the Jersey coast and grounded at Turtle Gut Inlet. Led by Captain Barry, the Cape May navy

took to their barges and, by hard rowing, reached the stranded vessel in time to give assistance. The first attempt by the British to board was beaten off by musket fire and by the *Nancy's* six 3-pounders.

The frigates then edged in to a point where their large guns were within range. When only 265 of the 386 barrels of powder had been landed from the brig her captain, Hugh Montgomery, and Barry decided to abandon ship. She was beginning to go to pieces under the terrific bombardment.

They laid a powder train to her deck and fashioned a wick out of the mainsail wrapped around 50 lbs. of powder. Into this they dropped some red-hot coals as they jumped into the last boat, stopping only long enough to pick out of the water a valorous sailor who had scrambled up the rigging to pull down the Grand Union flag. Minutes later, seven men leapt aboard from the first of the attackers' boats. At that moment the *Nancy* blew up with a tremendous crash and the too-eager Britishers were blown to bits.

During the winter of 1776-1777, Washington used the upper part of the Delaware River as a protective screen. When the Hessians advanced to Trenton, he took the precaution of collecting all river boats from Trenton to McKonkey's Ferry. Since the Delaware was too wide and deep for fording, this kept the enemy on the New Jersey side but permitted Washington's army to cross at will. His celebrated crossing on Christmas night has become embedded in the minds of Americans by Leutz's famous painting.

During the following summer Philadelphia was occupied by the British. They abandoned the route across New Jersey in favor of a movement by sea. Two hundred warships and transports went to the upper end of the Chesapeake where the soldiers were disembarked. After that General Howe's army defeated Washington at the Brandywine and entered Philadelphia, while Admiral Howe's warships started up the Delaware. The city could not be held indefinitely unless the River was opened. The warships passed the lower line of "chevaux de frise" without much trouble, because the weakly-held Fort Billingsport was abandoned.

The upper line of defense was a different story. A first attempt to rush Fort Mercer, on the Jersey side, was beaten off. The British then concentrated upon the fort on Mud Island. It was defended with great spirit and withstood a fierce bombardment. It was finally given up when heavy naval guns were landed on an island to its rear. Soon after that, Fort Mercer was also abandoned, and by November 18th the British had a firm grip on the river. Two partly-finished American frigates were taken up the river and scuttled. Captain Barry managed to run two barges down the river past Philadelphia at night, and others were dragged overland from Burlington to Salem Creek. Some patriots at Bordentown made an unsuccessful attempt to blow up the British warships by floating powder kegs down with the tide.

While at Valley Forge, during the winter of 1777-1778, Washington had a most difficult supply problem. The barges were used to ferry a detachment under Anthony Wayne across to New Jersey, where it succeeded in collecting 150 head of cattle. Wayne got his meat-on-the-hoof back to Valley Forge by way of Burlington. Barry's sailors managed to distract the British by setting fire to haystacks along the shore near Salem Creek. Later a detachment of New Jersey militia paid for Wayne's foraging party when, in reprisal, a British force surprised and massacred them at Hancock's Bridge.

The French alliance, beginning in 1778, brought a change in the fortunes of war. The English were forced to evacuate Philadelphia and to give up the blockade. The Continental Congress returned to the Quaker City. Trade, disrupted by war and worthless currency, had dwindled to almost nothing by 1783 when peace was finally achieved. In the last year of the War, the Tories came down from New York and disrupted what little local commerce remained. The governments of Pennsylvania, Delaware, and New Jersey made uncoordinated efforts to protect their own people. The Delaware "navy," consisting of the armed sloop *Vigilant* under the command of Colonel Charles Pope, had a brush with the "Refugees" and recaptured one of their prizes. The financing of these small navies was a difficult problem and made peace all the more welcome.

TO THE Delaware Pilots.

WE took the Pleasure some Days since, of kindly admonishing you *to do your Duty*, if perchance you should meet with the (Tea) Ship POLLY, CAPTAIN AYRES; a THREE DECKER which is hourly expected.

We have now to add, that Matters ripen fast here; and that much is expected from those Lads who meet with the Tea Ship. There is some Talk of a HANDSOME REWARD FOR THE PILOT WHO GIVES THE FIRST GOOD ACCOUNT OF HER. Now that may be, we cannot for certain determine: But all agree, that TAR and FEATHERS will be his Portion, who pilots her into the Harbour. And we will answer for ourselves, that whoever is committed to us, as an Offender against the Rights of America, will experience the Effects of our Abilities; as

THE COMMITTEE FOR TARRING AND FEATHERING.

P. S. We expect you will furnish yourselves with Copies of the foregoing and following Letter, which are printed for this Purpose, that the Pilot who meets with Captain Ayres may favor him with a Sight of them.

Committee of Tarring and Feathering.

T O

Capt. A Y R E S,

Of the SHIP POLLY, on a Voyage from London to Philadelphia.

S I R,

Where informed that you have, imprudently, taken Charge of a Quantity of Tea; which has been sent out by the India Company, under the auspices of the Ministry, as a Trial of American Virtue and Resolution.

Now, as your Cargo, on your Arrival here, will most assuredly bring you into hot waters; and as you are no less a Stranger to the Parts, we have concluded to advise you of the present Situation of Affairs in Philadelphia--that, taking Time by the Forelock, you may stop short in your dangerous Errand--secure your Ship against the Rafts of combustible Matter which may be let on Fire, and turned loose against her; and more than all this, that you may preserve your own Person, from the Pitch and Feathers that are prepared for you.

In the first Place, we must tell you, that the Pennsylvanians are, *to a Man*, passionately fond of Freedom; the Birthright of Americans; and at all Events are determined to enjoy it.

That they sincerely believe, no Power on the Face of the Earth has a Right to tax them without their Consent.

That in their Opinion, the Tea in your Custody is designed by the Ministry to enforce such a Tax, and they will undoubtedly oppose; and in so doing, give you every possible Obstruction.

We are nominated to a very disagreeable, but necessary Service. To our Care are committed all Offenders against the Rights of America; and hapless is he, whose evil Destiny has doomed him to suffer at our Hands.

You are sent out on a diabolical Service; and if you are so foolish and obstinate as to complete your Voyage, by bringing your Ship to Anchor in this Port, you may run such a Gauntlet, as will induce you, in your last Moments, most heartily to curse those who have made you the Dupe of their Avarice and Ambition.

What think you Captain, of a Halter round your Neck--ten Gallons of liquid Tar decanted on your Face--with the Feathers of a dozen wild Geese laid over that to enliven your Appearance?

Only think seriously of this--and fly to the Place from whence you came--fly without Hesitation--without the Formality of a Protest--and above all, Captain Ayres let us advise you to fly without the wild Geese Feathers.

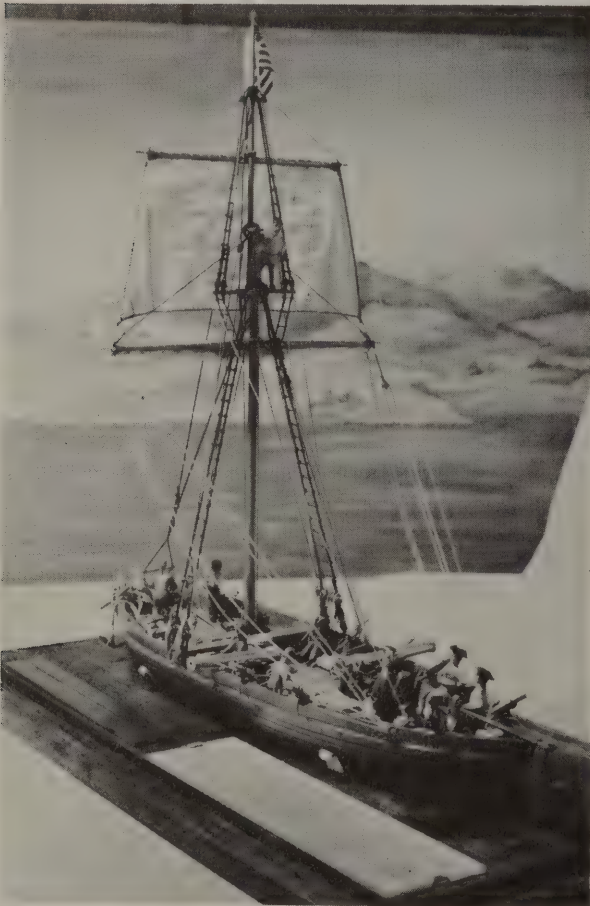
Your Friends to serve

THE COMMITTEE as before justified

Philadelphia, Nov. 27. 1774.

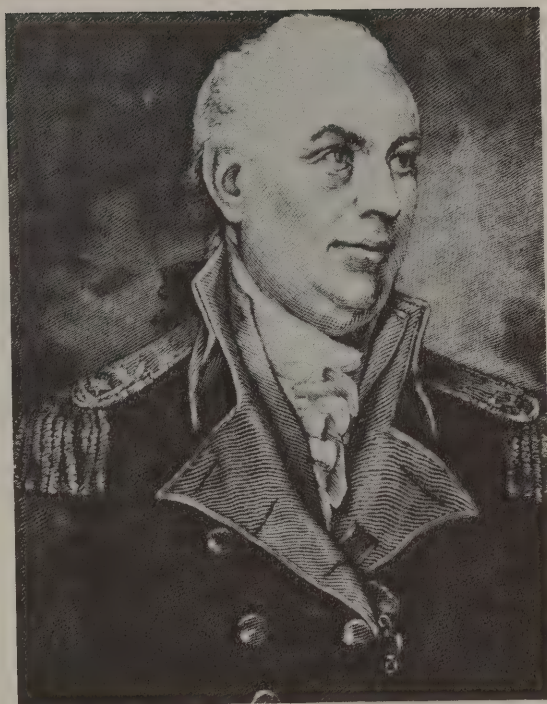
The Philadelphia "Committee for Tarring and Feathering" distributed this broadside several days before the dramatic Boston Tea Party. It is evidence of widespread colonial opposition to the tea tax. When the *Polly* arrived at Gloucester Point, the broadside was reissued and a public protest meeting was held. Captain Ayres was persuaded to sail back to England with his cargo untouched.

A year later the brig *Greyhound* brought a cargo of tea intended for Philadelphia, but landed at Greenwich, N. J., and stored the tea in a Tory cellar. On the night of Nov. 22, 1774, a party of about forty men, disguised as Indians, seized the tea and burned it in the market square. Only one of the "Indians" stuffed tea leaves into his breeches. (Courtesy of Historical Society of Pennsylvania.)

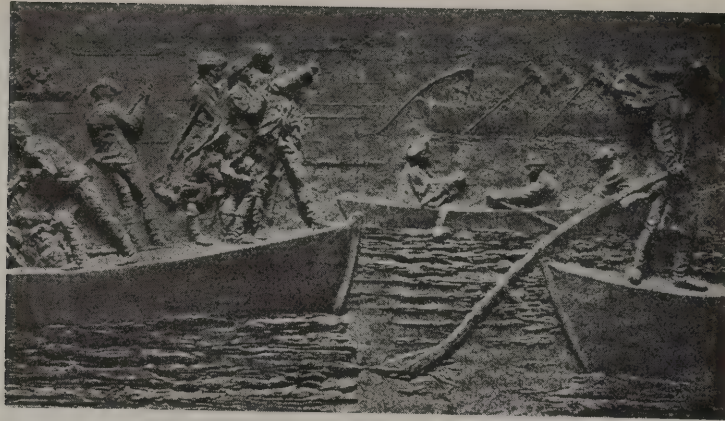


The first naval action of the Revolution on the Delaware was a two-day engagement between the British war vessels *Roebuck* and *Liverpool*, on the one hand, and thirteen row-galleys or "gondolas" on the other. The action was indecisive but probably influenced the British to launch their attack on Philadelphia, a year later, by way of the Chesapeake. This is an accurate model of the "gondola" *Philadelphia* built by Philadelphia ship carpenters to help defend Fort Mifflin. It is similar to those used on the Delaware. (Courtesy of Edward P. Hamilton, maker of this model.)

Irish-born Captain John Barry has been called "Father of the American Navy." Before the Revolution he was an able master of merchant vessels. In 1775, upon returning to Philadelphia from a voyage to England, he was given command of the brig *Lexington*, one of the first war vessels commissioned by the Continental Congress. He managed to disrupt the early efforts of the English to block the entrance to the Delaware. Having no ship, after the British occupied Philadelphia in 1777, Barry fought in the Trenton campaign as a volunteer in the Army. When he died in 1803, he was senior captain in the revived Navy. (Portrait by Gilbert Stuart from Scharf & Westcott's, "History of Philadelphia.")



In 1780 Barry was given command of the 32-gun, fast-sailing frigate *Alliance*. He was detailed to escort Lafayette to France. On the way and during the last months of the War, he captured several prizes. He had the distinction of fighting the first and last engagements of the War involving naval vessels on both sides. In 1785 Robert Morris bought the *Alliance* and sent her on a voyage to China. (Courtesy of Navy Department.)



Thomas Eakins designed this relief on the Battle Monument at Trenton. It is a more accurate historical representation than the painting by Leutze, for it shows the use of Durham boats and makes it clear that the crossing was in the direction of the Jersey shore instead of away from it. (Courtesy of Bucks County Historical Society.)



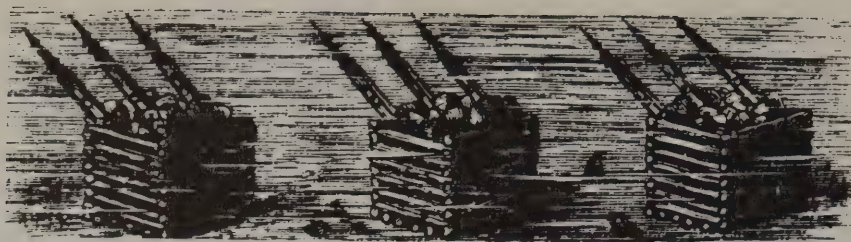
The Delaware is associated with the Revolution in the public mind by this picture more than by any other thing. It is a magnificent and stirring portrayal on a huge canvas with life-size figures. However, it is open to historical criticism, especially with respect to the boats and the flag. Big Durham boats were used and the Stars and Stripes had not been officially adopted as early as the Christmas of 1776. The artist, Emanuel Leutze, painted the picture under handicaps of time and place, as it was three quarters of a century after the event when he received the commission from Congress and was then in Dusseldorf, Germany. (Courtesy of the Metropolitan Museum of Art.)



The fort on "Mud Island" withstood a terrific bombardment from 243 naval guns fired from front and rear. Only fifty men from the garrison of three hundred survived. As reported by Washington, "The works were entirely beaten down, every piece of cannon dismounted, and one of the enemy's ships so near that she threw grenades into the fort and killed men upon the platform from her tops before they quitted the island." (From Scharf & Westcott's, "History of Philadelphia.")



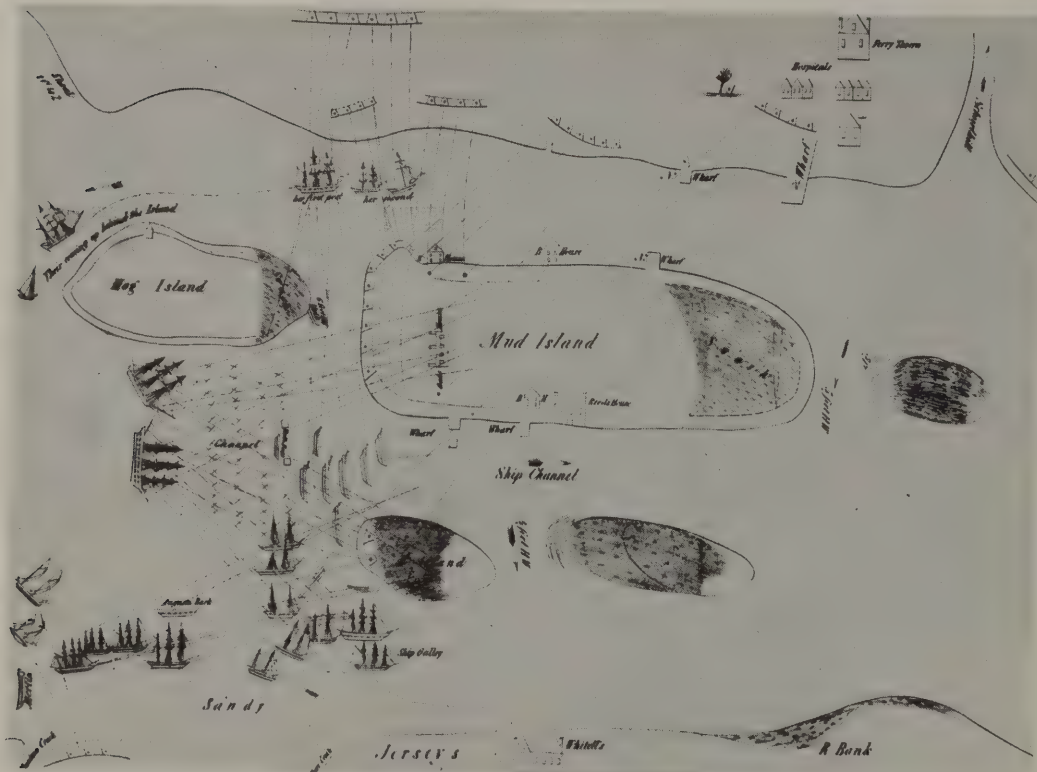
The action off Mud Fort involved fire-ships and row-galleys as well as frigates. Lieut. W. Elliott of the Royal Navy drew this picture on the spot. The British men-of-war *Augusta*, *Roebuck*, *Pearl*, *Liverpool*, and *Merlin* are in the foreground, the burning *Augusta* and *Merlin* on the extreme right. (Courtesy of New York Public Library, Stokes Collection.)



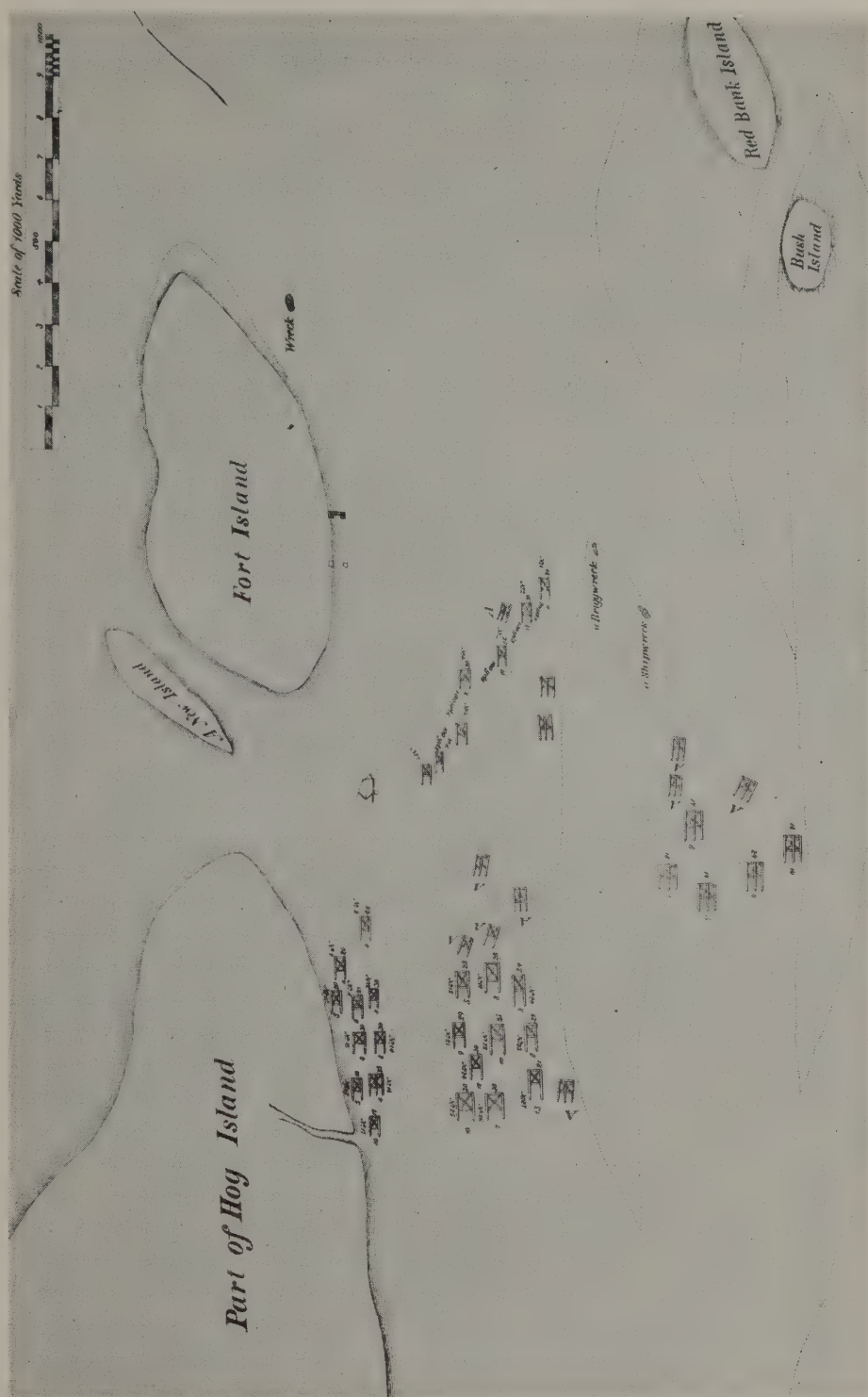
The character of the "chevaux de frise," used in defense of Philadelphia.
(From Pennsylvania Magazine, Vol. 65.)



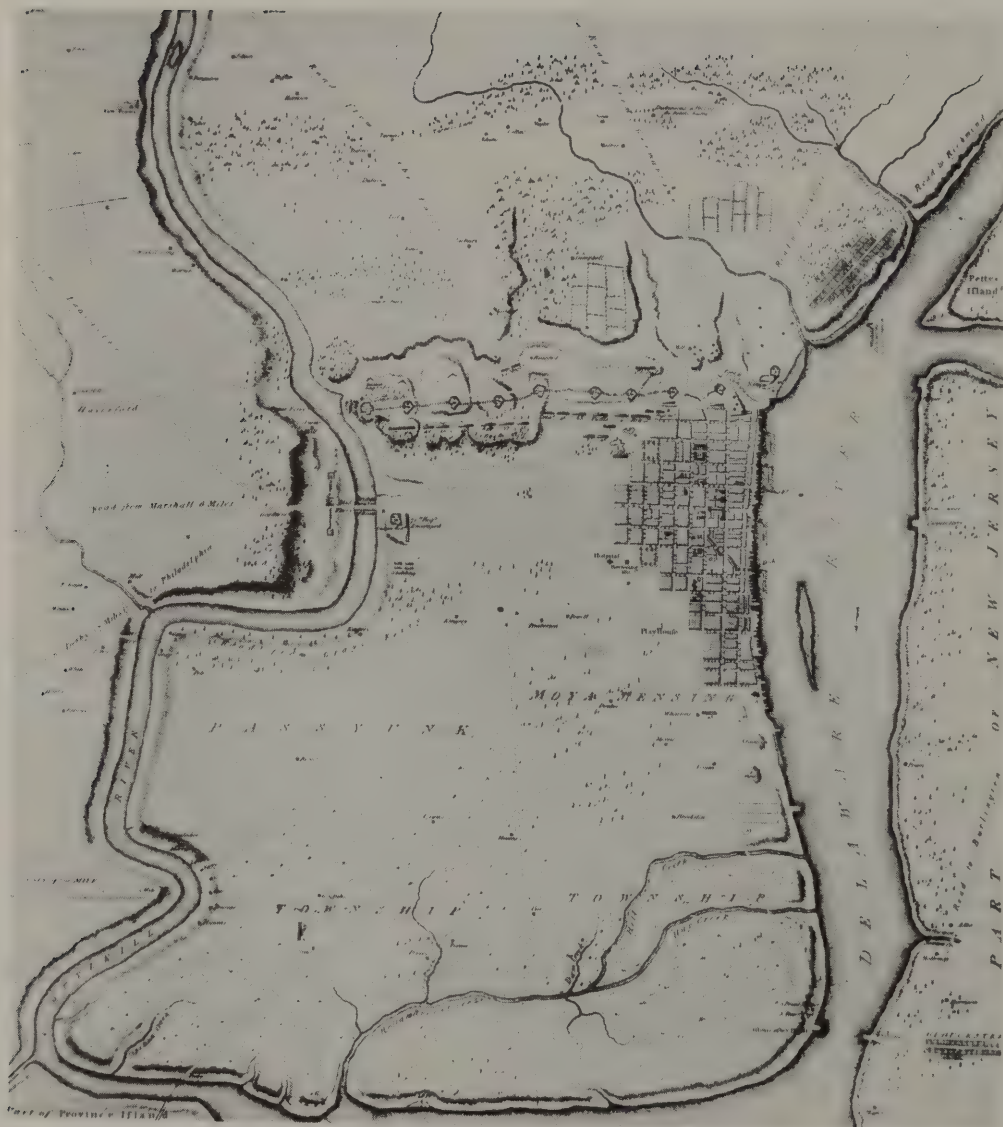
Barriers at entrance to landing at Fort Island which defended the approach
to Philadelphia. (From Pennsylvania Magazine, Vol. 65.)



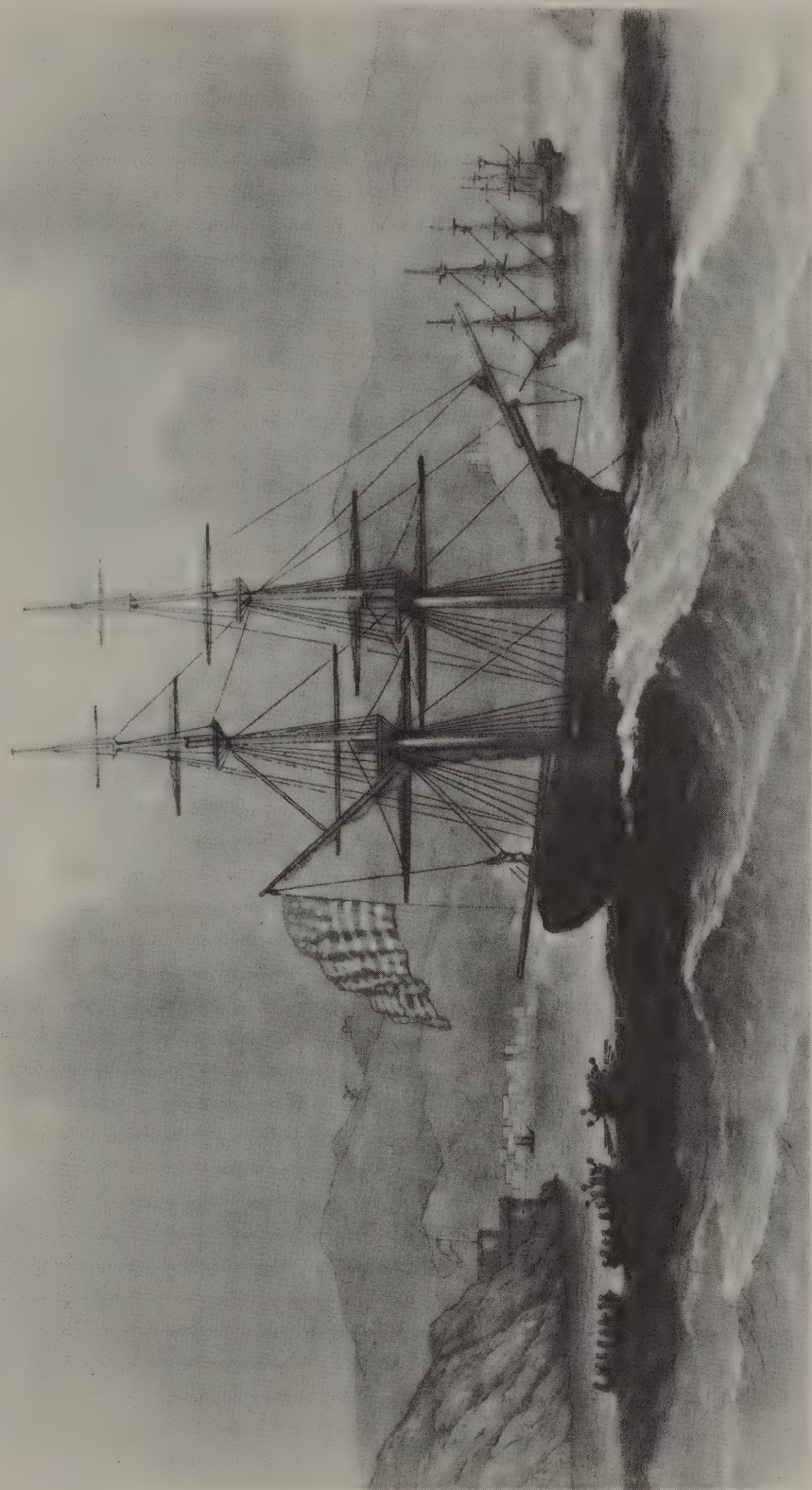
The fort on Mud Island, also called Fort Island, was not built to fire towards the rear, so that once the British planted naval guns on that side it was doomed. When reconstructed after the War, it became Fort Mifflin, named in honor of Pennsylvania's first governor, Thomas Mifflin. The island has since become joined to the mainland. Commodore Hazelwood, who commanded the Pennsylvania Navy, included this diagram in his report of the battle. (From Pennsylvania Archives.)



The exact number and location of the obstructions, called "chevaux de frise" or "stockadoes," are shown here. Their location was important after the War as well as while it was in progress, for it was several years before they were pulled out and ceased to be a hazard to navigation. (From Pennsylvania Archives.)

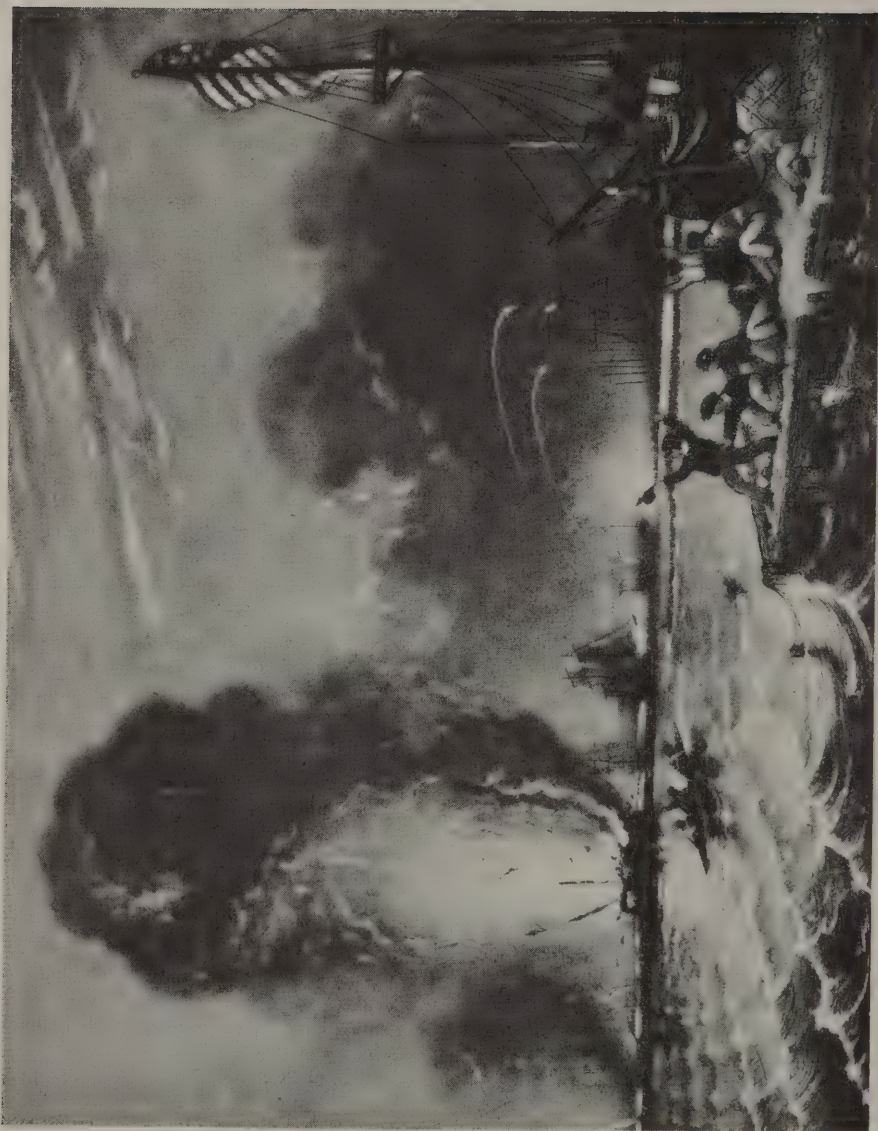


British fortifications around Philadelphia and the men-of-war anchored along the waterfront are included in this map published in London in 1779 by William Faden. In January, 1778, some Bordentown patriots floated twenty powder kegs, tied in pairs and triggered to explode on contact, down the River with the tide. Since the water was freezing that night, the war vessels had been moved from their anchorage to the docks. As the kegs floated by, four soldiers were killed in an attempt to lift one out of the water. According to one account, there was a great excitement with troops rushing to the waterfront and firing on every moving object. The plotters were chagrined, the British were annoyed, and some people were amused, especially by Francis Hopkinson's satirical poem "Battle of the Kegs." (Courtesy of Historical Society of Pennsylvania.)



John Sartain drew this picture of the *Nancy*. He came to Philadelphia from England in 1830 and was the first mezzotint engraver in America. It is taken from Elizabeth Montgomery's book, "Reminiscences of Wilmington," published in 1852. She was the daughter

of Captain Hugh Montgomery, master of the *Nancy* at the time of her destruction. Miss Montgomery claimed for the *Nancy* the honor of being the first ship to hoist the Stars and Stripes in a foreign port, as this picture was intended to show.



The British did not come out of the battle off Mud Fort unscathed. Both the *Augusta* and the *Merlin* ran aground. The former blew up by accident, it was said, and the latter was burned to prevent her capture. (Courtesy of Historical Society of Pennsylvania.)

IV

The First Years of Independence

(1783-1815)

INDEPENDENCE did not solve all problems. In fact, it gave rise to some new ones. Freed from the restrictions of the Navigation Acts, Americans found themselves outside the Empire looking in at lost markets. Red-coated soldiers and the Royal Navy no longer threatened, but, on the other hand, they no longer protected. Peace reigned, but America was a small nation in a world dominated by predatory powers. The continuance of peace and freedom from involvement in foreign war was uncertain. A weak central government and an unstable financial condition were not conducive to enterprise.

But freedom, energy, and abundance of natural resources gave promise of a brighter future. What if old markets were lost? New ones could be found. Adventurous merchants in Salem, Mass., New York, and Philadelphia set about to find them. The East and West Indies offered the greatest promise. The third American ship to reach the East Indies, after the Revolution, was the Philadelphia-owned *Canton*. In 1788 Robert Morris bought one of the last remaining ships in the Continental Navy, the *Alliance*, and sent her to China. By 1800 there were forty Philadelphia vessels in the China trade, about as many more trading in South America, and a large number trading in Europe. Philadelphia was the leading American port.

Grain from nearby farming areas was Philadelphia's chief export. There were mills on every creek with sufficient power to turn a wheel. The swift and conveniently located Brandywine had a large number of mills. Shallow-draft shallops transported flour to Philadelphia where some of it was consumed but most of it was shipped out to distant ports. A new triangular trade was developing: flour and barrel staves to the Caribbean; sugar and rum to England; iron and textiles back to Philadelphia.

The adoption of the Constitution and a stabilized currency ended the threat of economic chaos. Pennsylvania had imposed a tariff in 1785 whereupon Delawarrians declared New Castle and Wilmington free ports and began to seek independent means for the export of their flour.

Wilmington merchants built their own ship, the 250 ton *General Washington*, in 1790.

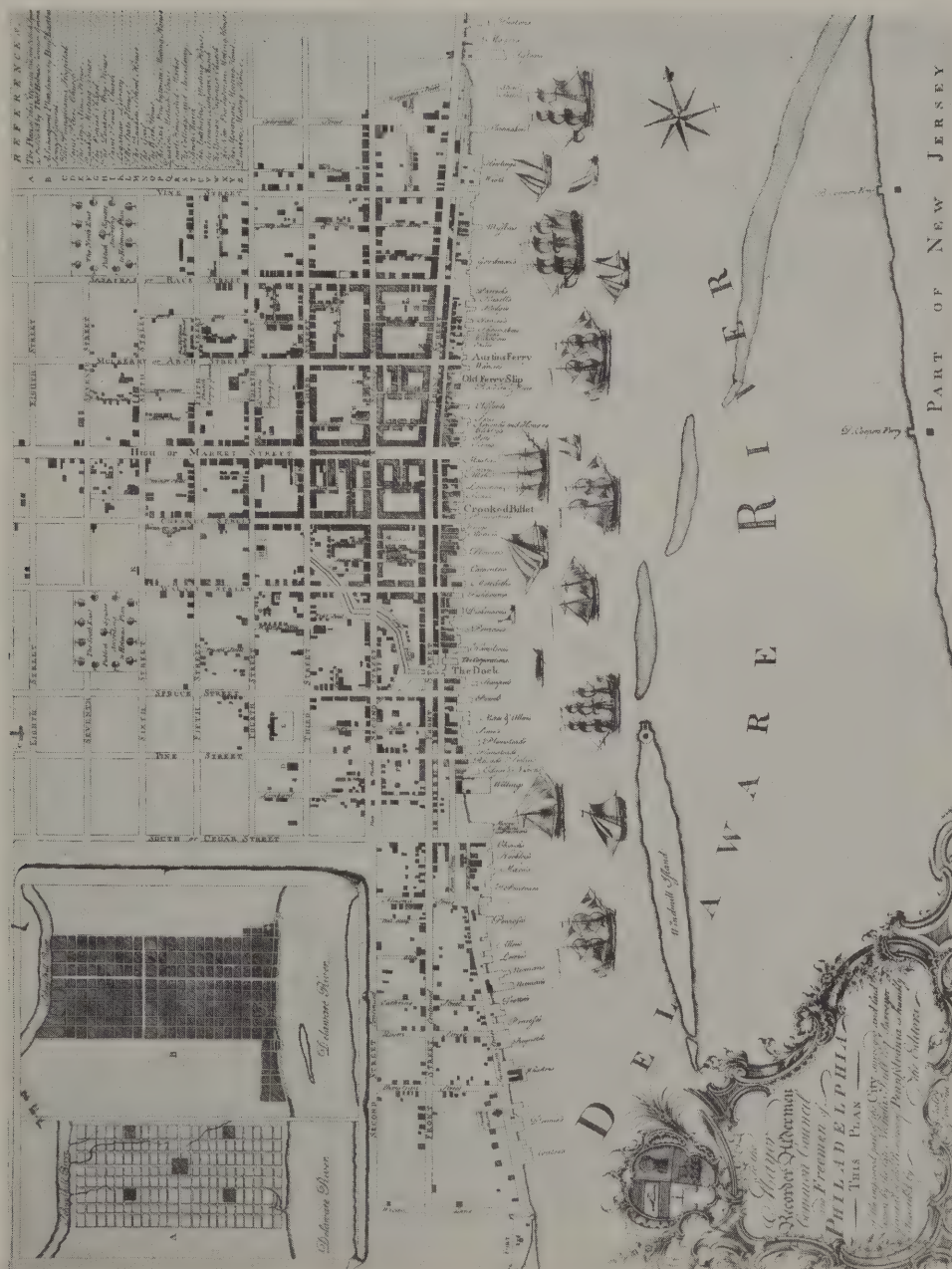
A yellow fever epidemic in 1793 dealt Philadelphia a severe blow. A large part of the population fled from the city. The epidemic recurred in 1797. Because of it a number of French emigrés arriving from Haiti settled in Wilmington, instead of Philadelphia, and became a small but influential group in the life of that city.

Revolution and war in Europe caused a number of emigrés to come to America. Joseph, brother of Napoleon, was one of them. He settled at Bordentown where he purchased a handsome estate overlooking the river. General Moreau, a leader of the French Revolution, lived for a time across the river at Morrisville. Both men eventually returned to France; Moreau to fight Napoleon in Russia and Joseph Bonaparte to make an unsuccessful attempt to regain political power. The du Pont family came to Wilmington in 1802. They came to stay and to become leaders in industry.

As trade revived, so did shipbuilding. Small boats for fishing and local transport were built on nearly every creek. Philadelphia shipbuilders gained a reputation for well-built and handsome vessels. They sold ships abroad as well as at home. Timber was abundant and near at hand. The depredations of Algerian corsairs upon American shipping convinced the Government that some kind of a navy was necessary to insure respect for the flag. In 1794 it authorized the construction of six frigates. The Philadelphia shipbuilder Joshua Humphrey designed them and built one, the *United States*. Two others, the *Constitution* and the *Constellation*, were built in Boston and Baltimore, respectively, and all three were finished in time to do valiant service in the undeclared war against France (1798-1801), against Tripolitan corsairs (1801-1805), and against England during the War of 1812.

The renewal of war with England had a dire effect upon commerce. Once Napoleon was disposed of, the English were able to bring an increasing number of soldiers and naval vessels to back up their forces in America. Soldiers were landed in the Chesapeake and burned Washington. The Royal Navy, in spite of a few losses to the rejuvenated American Navy, was able to convoy English merchant ships and, at the same time, effectively blockade American ports. Maritime activity had ceased completely when the war ended and a new period of peace began.

The activity and central importance of the waterfront of Philadelphia is indicated by this plan of the port in 1762. Windmill Island, opposite Dock Street, is clearly shown as is the adjoining island-in-the-making. (Courtesy of New York Public Library, Stokes Collection.)

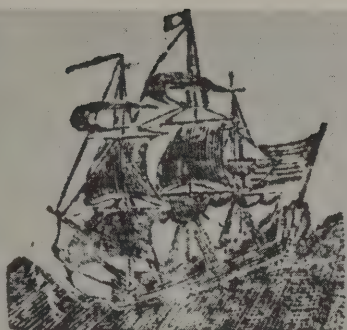




A crude lighthouse equipped with a feeble whale oil lamp was erected at Cape Henlopen as early as 1725, one of the first on the Atlantic coast. The more permanent hexagonal tower, shown in this picture, was constructed forty years later. Patriots extinguished it during the Revolution and the British burned it, but it was restored in 1784. (From *The Columbian Magazine*.)



New Castle was the first port of entry for ships coming up the Bay. The Assembly for the three lower counties moved inland to Dover during the Revolution, but New Castle continued to be the county seat until 1881. Just as many incoming sailing ship passengers debarked here, similarly many outgoing passengers avoided the often tedious sail down the River from Philadelphia by boarding their ship at New Castle. (Painted July 4, 1797 by Le Blanc. Courtesy of Richard S. Rodney.)



For BELFAST,

The American Ship

WILMINGTON,

Burthen 250 tons,—James Jefferis, Master. She will sail about the 10th of December, a great part of her cargo being engaged, is a fine new ship, with good accommodations for passengers. For freight or passage, apply to the Captain on board, at Willing Morris and Swapwick's wharf in Philadelphia, or to



For Londonderry,

The beautiful new SHIP,

General Washington,

Thomas Forte, Master, Burthen 250 tons, expected to sail early in December next, calculated and completely fitted for the Passenger Trade, high and roomy between Decks, and well finished. For Freight or Passage, apply to the Master on Board, to William Hemphill, or

Isaac Hendrickson.

The Delaware Gazette of Oct. 23, 1790 described the launching in Wilmington of the "strong and handsome built" ship *General Washington* and advertised her sailing for Londonderry. The same issue advertised the fifty-year old *Wilmington* for Belfast. Both vessels were of 250 tons burden, the average for ocean vessels of that period, and both took out cargoes of flour and barrel staves and brought back Irish immigrants. (Courtesy of Historical Society of Delaware.)



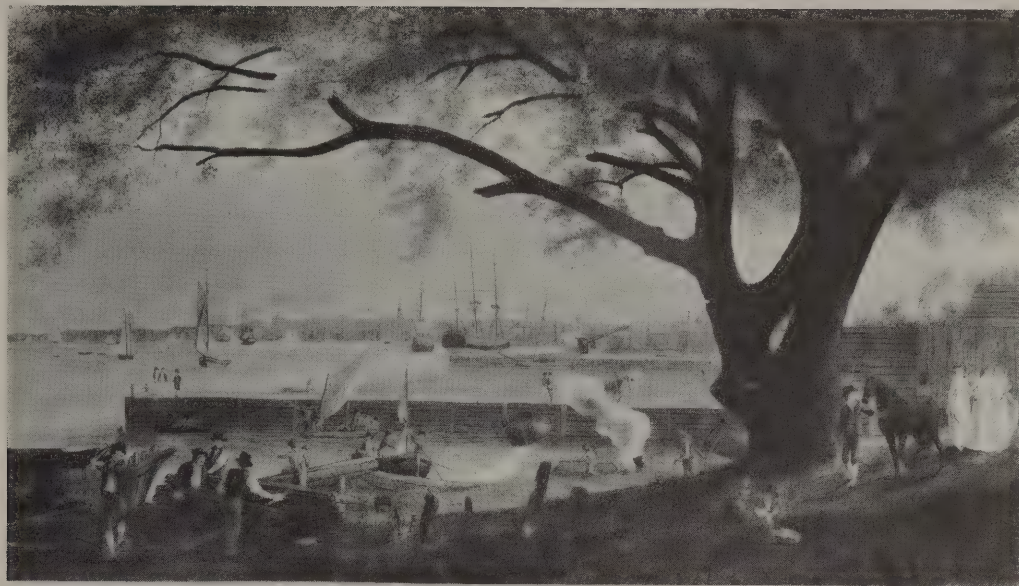
This early view of the town of Wilmington and the open country stretching to the Delaware shows the Christina winding leisurely to join the big river and connecting with the Brandywine enroute. (From *The Columbian Magazine*.)



Fourteen members of the du Pont family came to this country on the ship *American Eagle* in 1800. They landed at Newport, Rhode Island, and, two years later, settled on the banks of the Brandywine where they founded the gunpowder business. (Courtesy of P. S. du Pont Estate.)



Millers, as early as the 17th century, were attracted to this spot where the swift water of the Brandywine meets tidewater, but the first flour mill was not built until 1742. Within fifty years the Brandywine provided power for wheat and corn mills, iron-slitting mills, mills for making such things as paper, flax-seed oil, and snuff and for operating eight forges and a tilt hammer. The Lea mills below Market Street bridge, shown here, could be reached directly by shallops coming up from the Christina and the Delaware Rivers. (Painted by Bass Otis and owned by Beatrix T. Rumford. Courtesy of Frick Art Reference Library.)



Thomas Birch's painting shows a boatyard in the shade of the Treaty Elm as the scene looked about 1800. (Courtesy of New York Public Library, Stokes Collection.)



The construction of the frigate *Philadelphia* in Joshua Humphrey's shipyard near Old Swedes Church, Southwark, is pictured in this engraving by "W. Birch & Son." It was drawn in 1799. (Courtesy of Atwater Kent Museum.)



This handsome lithograph of Philadelphia was done by the French artist Garneray and published in France. It represents the city early in the 19th century but includes the picturesque windmill which blew down in 1751. (Courtesy of New York Public Library, Stokes Collection.)



Arch Street, Philadelphia, where the Cooper family had a ferry to Camden. (Engraving by "W. Birch & Son" drawn about 1800. Courtesy of Atwater Kent Museum.)



The ship *Betsey*, Captain J. Risbrough, on a voyage to Leghorn in 1800 had to fight off French privateers on three occasions. The fight pictured here involved seven privateers, but they were not enough to capture her. (Courtesy of Mariners' Museum, Newport News, Va.)



In 1803 the frigate *Philadelphia* was sent to subdue the Tripolitans. When she ran aground and was captured, young Stephen Decatur led a daring group which boarded and burned her under the guns of the forts of Tripoli. (Courtesy of Mariners' Museum, Newport News, Va.)



When a young man, Robert Morris (1733-1806) and his partner, Thomas Willing, had the most extensive West Indian shipping house in Philadelphia. He was a signer of the Declaration of Independence and was Washington's financial mainstay during the Revolutionary War. In the latter part of his life he became insolvent and spent three years in debtor's prison. (Courtesy of Historical Society of Pennsylvania.)

Stephen Girard (1750-1831) began his career as captain of a merchant ship. At the end of the Revolutionary War he engaged in the West Indian trade. He became the foremost banker in the United States and saved the loan which permitted the country to continue the War of 1812 to a successful conclusion. (Courtesy of Historical Society of Pennsylvania.)





Soon after the *Lancaster's* launching in 1811, her owner, Thomas Cope, sent her to China. The War of 1812 had begun before she returned and Cope was fearful that the British would stop her at the Capes, but she arrived safely. Her captain had no knowledge of the War. Cope sold her cargo at 100% profit. (Courtesy of Mrs. George Emlen.)



The *Superior*, owned by Wm. Hodge & Co., of Philadelphia, was a China trader. When this picture was made, about 1819, her captain was John Hamilton, one of several sea captains from the small town of Wilmington. (Courtesy of H. M. Canby.)



One of the celebrated sea fights of the War of 1812 was that of the 44-gun frigate *United States*, commanded by Stephen Decatur, Jr., and the 38-gun British frigate *Macedonian*. The City Council of Philadelphia presented Decatur with a sword as a tribute to his victory. The *United States* had been built in Joshua Humphrey's shipyard. (Courtesy of Atwater Kent Museum.)



Brig *Tryphena*, owned in Philadelphia early in the 19th century. Artist unknown. (Courtesy of M. V. Brewington.)



The ship *Asia* was owned by John F. Lewis of Philadelphia. She made a voyage to Calcutta in 1825-26 which may have been the occasion of her brush with a privateer, as shown in this painting. (Courtesy of Atwater Kent Museum.)



The Philadelphia shipbuilders Joseph and Francis Grice launched the 44-gun frigate *Guerriere* shortly before the end of the War of 1812. She was named after a British frigate destroyed by the *Constitution* in the first decisive naval action of that War. (Courtesy of Historical Society of Pennsylvania.)



Coal was first taken out of Pennsylvania on the swift waters of the Susquehanna and Lehigh rivers by means of box-like barges called "arks." After being unloaded at their destination they were sold for lumber. The first shipment of anthracite to Philadelphia was made in 1803 but it was another decade before its advantages were recognized. (From Wyoming Historical and Geological Society Report.)



Joseph Bonaparte, ex-King of Spain, fled to America in 1815 under the assumed name "Count Surveilliers." He bought a 1500-acre estate at Bordentown, a location midway between Philadelphia and New York where foreign news would reach him promptly. At "Point Breeze" he built a handsome house overlooking the river and filled it with paintings, sculpture, and other Napoleonic treasures. The original house, pictured here, burned down in 1820. (From Heston's, "South Jersey History.")

V

Introduction of Steam Propulsion

(1790-1819)

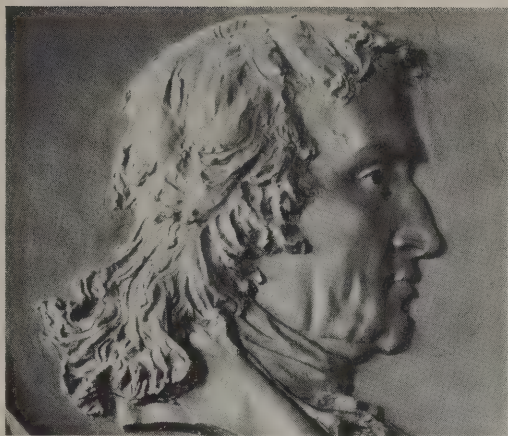
FULTON'S *Clermont*, which attracted so much attention in 1807, was, for the most part, merely the re-invention of a steamboat, for John Fitch had operated one on the Delaware in 1790. Unlike Fulton, Fitch had to make his own engine. He was a self-educated, unprepossessing-looking artisan with an inner urge to see his dreams come true. With the aid of a clockmaker friend and a blacksmith or two, he installed an engine in a 45 foot skiff and rigged paddles along the sides so that it operated like an Indian war canoe. It was his first attempt to solve the difficult problem of transposing the reciprocating movement of the piston into the rotary motion of the paddles. As it turned out, a war canoe would have been faster, for his boat's speed was only three miles per hour. The boat cost \$300, contributed by fifteen subscribers who had seen his model and learned of his fourteen-year monopoly in the State of New Jersey. Members of the Constitutional Congress meeting at Philadelphia came to see his contraption and this encouraged him to disregard the derisive hoots of professional river men and waterfront loafers.

Fitch set about energetically to build a new sixty-foot boat with a narrower beam, a bigger engine, an improved condenser, and a pipe boiler which eliminated three and a half tons of brickwork. But this steamboat broke down after covering most of the twenty miles from Philadelphia to Bordentown. His third try, with an improved steamboat, in 1790, was more successful. This one, pushed by three paddles at the stern, attained a speed of 8 m.p.h., over a measured mile along the Philadelphia waterfront and with the safety valve held down. During the year this boat covered between two and three thousand miles at an average speed of 6 to 7 m.p.h. Breakdowns were infrequent but people preferred to ride on quiet sailboats or smokeless stages which reached Bordentown in an hour and a half less time though at twice the fare. The steamboat averaged only seven passengers and a "take" of 20 shillings per trip, whereas the cost of operation was 30 shillings. When Fitch asked his backers for funds to build another boat they lost interest and the project was given up in 1791. Fitch predicted that steam would "be the mode of crossing the

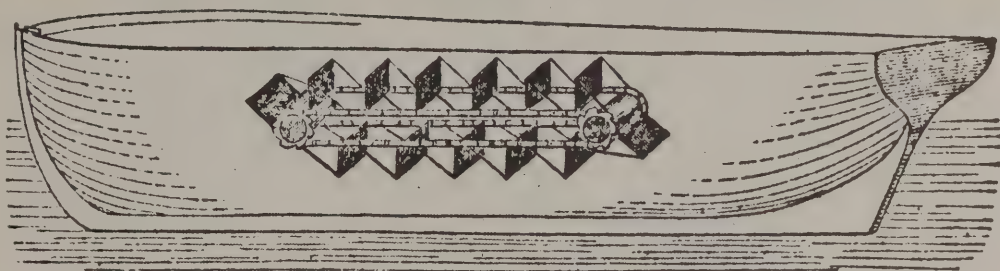
Atlantic in time, whether I shall bring it to perfection or not." Ill and discouraged, he died by his own hand in 1798.

Oliver Evans, a contemporary of Fitch, also experimented with steam power on the Delaware. In 1804, under contract with the Philadelphia Board of Health, he built a remarkable amphibious dredge. Mounted on a flat-boat 30 feet long by 12 feet broad, the whole weighing twenty tons, he put it on wheels and, under its own power, went a mile and a half up Market Street for easy launching into the Schuylkill. Then he attached a paddle-wheel to the stern and went "down the Schuylkill and up the Delaware, sixteen miles, leaving all the vessels that were under sail full half-way behind me (the wind being ahead). Although the application was so temporary as to produce friction, and the flat most illy formed for sailing; all of which was performed in the presence of thousands." During the remaining years of his life he concentrated on engine building. Like Fitch, Evan's confidence in the steam engine was unshakable. He predicted that "the time will come when people will travel in stages moved by steam engines, from one city to another, almost as fast as birds fly, fifteen or twenty miles an hour."

Fulton's New York monopoly forced the Hoboken inventor John Stevens to take his steamboat *Phoenix* from the Hudson into the open sea, en route to the Delaware, in 1809. A year later, the steam ferry *Camden* superseded the Philadelphia-Camden horse-ferry and, by 1813, two additional steamboats, the *New Jersey* and the *Eagle*, were operating on the Delaware. In two more years the sailing packet *Vesta*, converted to steam, ran between Philadelphia and Wilmington. In 1819 Captain Moses Rogers, who had skippered the *Phoenix*, blazed another trail as he skippered the *Savannah* across the Atlantic using steam power for part of the distance. A new era in navigation had arrived.



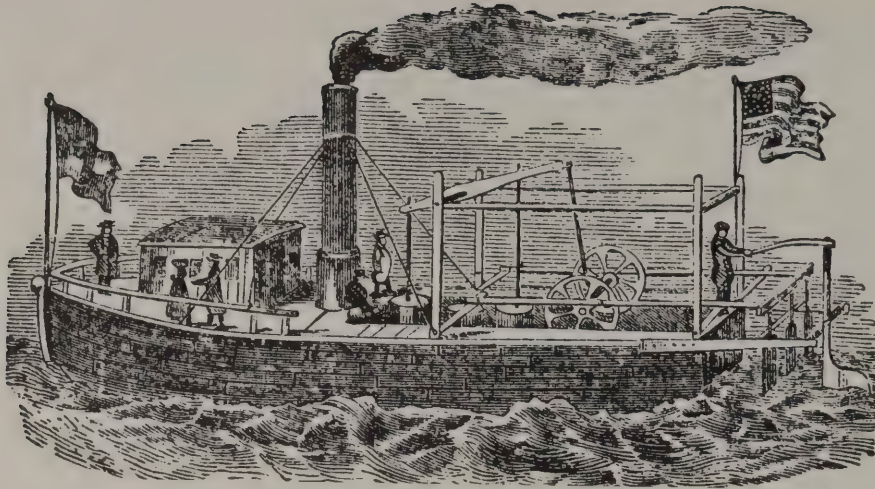
John Fitch (1743-1798), a Connecticut farmer's son, had no formal schooling after the age of ten. Leaving home at fifteen, he tried various occupations including clock repairing. After an unhappy marriage he left his family and worked as a gunsmith at Trenton. When his shop was destroyed during the Revolution, he moved to Pennsylvania where he began his steamboat experiments. Fitch had few real friends and his manner and excitability made some people consider him half-demented. He persisted against great odds and built a workable steamboat ahead of the more-celebrated Robert Fulton. (Courtesy of Connecticut State Library.)



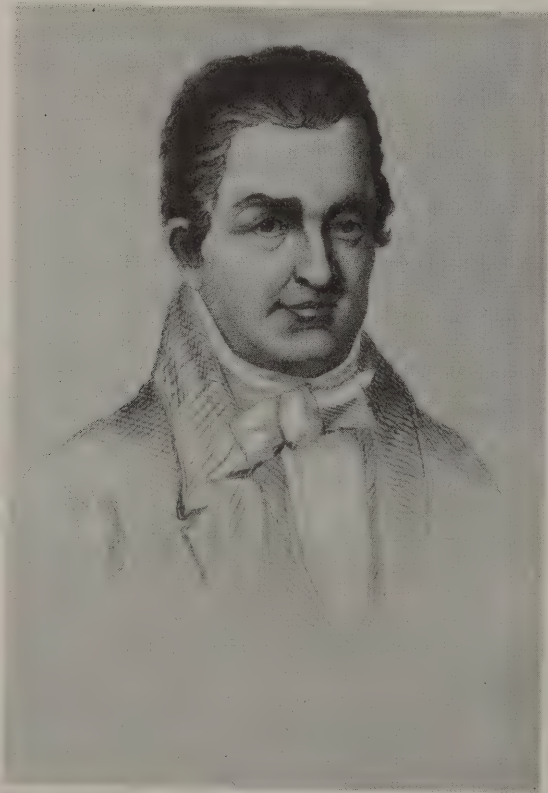
In 1785 Fitch conceived the idea of steam propulsion on the water. He made a model, such as this, with a series of paddles fastened to an endless chain. He tried it out on a stream near Davisville, Bucks County, Pa., but the demonstration was not convincing enough to win for him financial backing. (From Dunbar's "A History of Travel in America.")



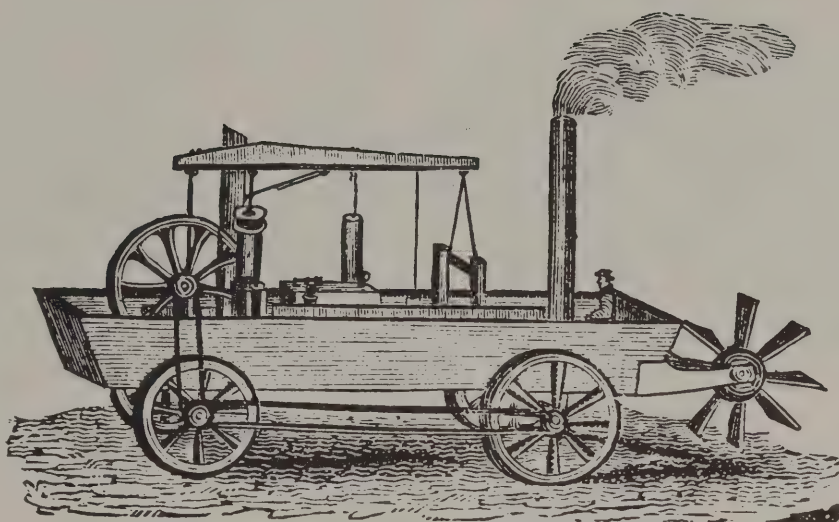
A year later the New Jersey legislature granted Fitch a fourteen-year monopoly. This enabled him to organize a company and to build the first steamboat in America. Fitch had never seen a steam engine; indeed, there were only three in this country at that time. He used upright paddles, six on each side, the whole operated by a system of cranks. It is probable that he had in mind the Indian canoe, which he knew from experience. The results were not startling but were encouraging. (Drawing by Reigart. Courtesy of Library of Congress.)



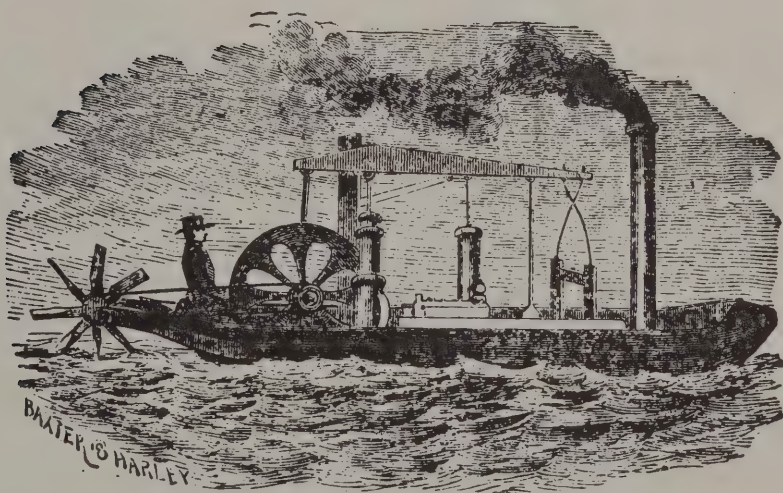
Although Fitch secured funds for a second boat in 1787, work on it was delayed because of his involvement in a dispute with Rumsey, a rival inventor. Finally, a third and bigger boat was obtained. It was 45 feet long and had a 12 foot beam. This time three or four upright paddles were placed in the stern instead of alongside. By tinkering with the engine Fitch raised the speed from four to eight miles per hour. In the summer of 1790 this steamboat began making regular trips between Philadelphia and Trenton, the first steam packet-boat in America. (From Dunbar's "A History of Travel in America.")



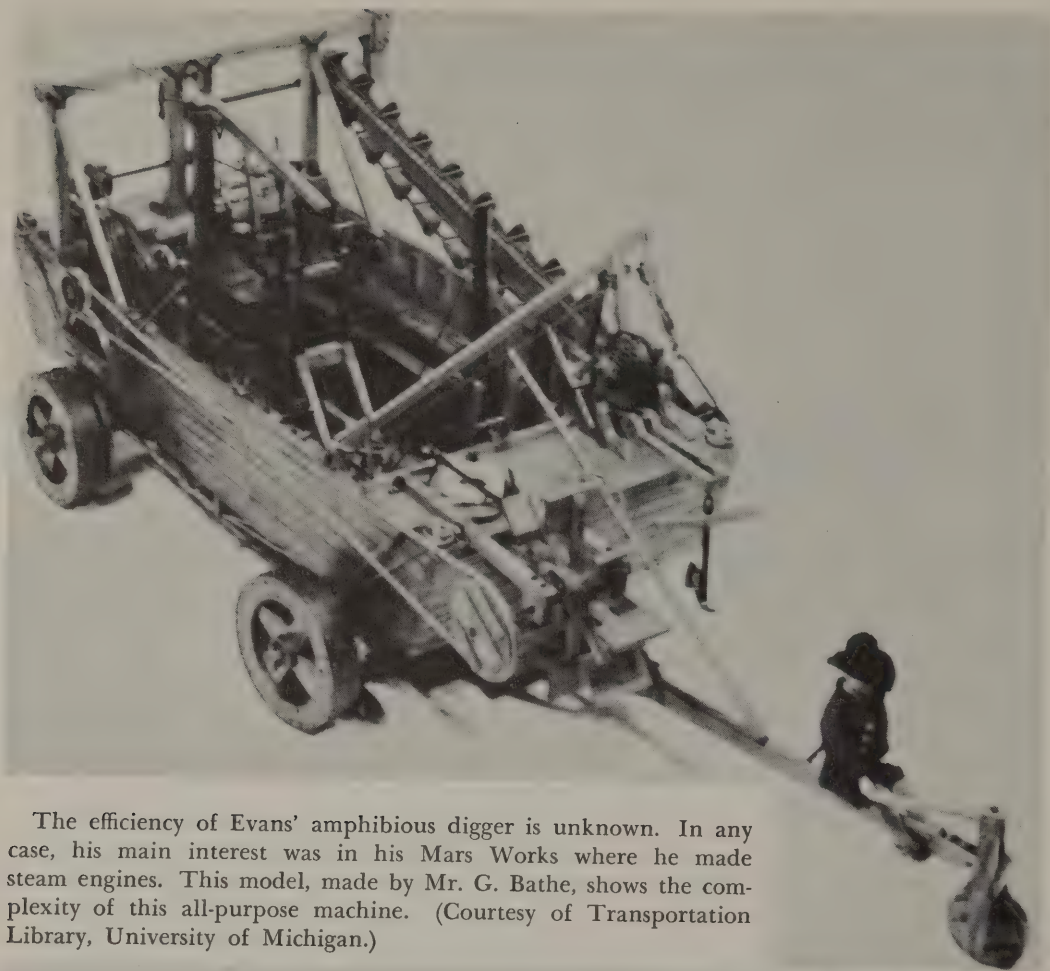
Oliver Evans (1755-1819) was the son of a Delaware miller and was apprenticed to a wheelwright. His inventiveness and mechanical ability were evident at an early age. He built an improved flour mill with which he demonstrated how to produce more flour with less labor. He moved to Philadelphia in 1791 and kept store for a few years before he built his first steam engine. (From G. Bathe, "Oliver Evans.")



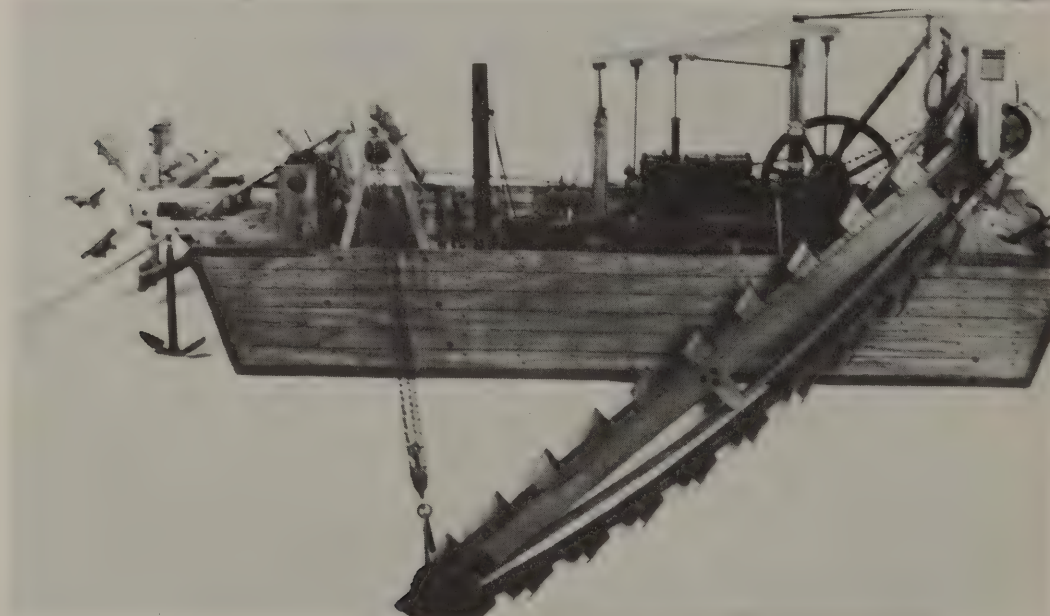
In 1804 Evans contracted to build a dredge. He put wheels under it and ran it, under its own power, to and then into the Schuylkill River. It was the first "horseless carriage" propelled by a steam engine in America. (Courtesy of Transportation Library, University of Michigan.)



Evans named his dredging machine, "Orukter Amphibolos," meaning "Amphibious digger." With the propeller in place, he then moved down the Schuylkill and up the Delaware. Considered as a steamboat, Evans' invention was, of course, later than that of Fitch. (Courtesy of Transportation Library, University of Michigan.)



The efficiency of Evans' amphibious digger is unknown. In any case, his main interest was in his Mars Works where he made steam engines. This model, made by Mr. G. Bathe, shows the complexity of this all-purpose machine. (Courtesy of Transportation Library, University of Michigan.)

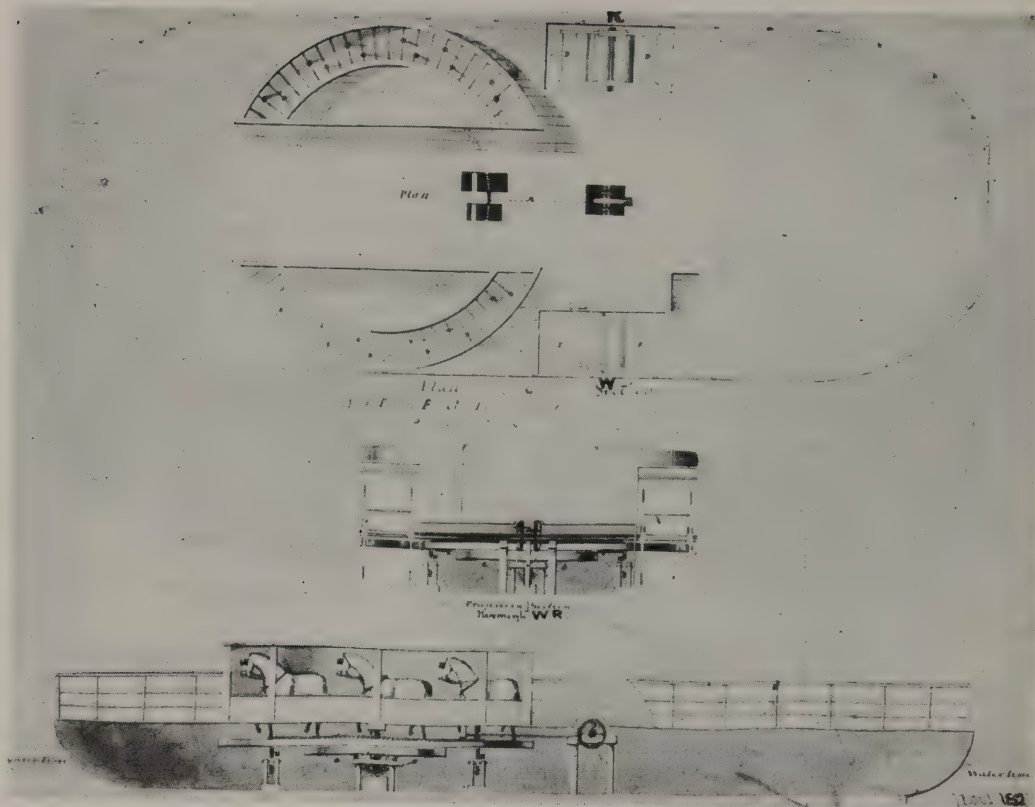




Both the Lower or Gray's Ferry, pictured here, and the Middle Ferry had floating bridges over the Schuylkill at the beginning of the 19th century. A center piece had to be moved out every time a boat passed. This drawing was published in the *Columbian Magazine* in 1787, two years before the bridge was carried away by a flood. It was rebuilt and lasted until it was replaced by a permanent railroad bridge in 1838. (Courtesy of New York Historical Society.)



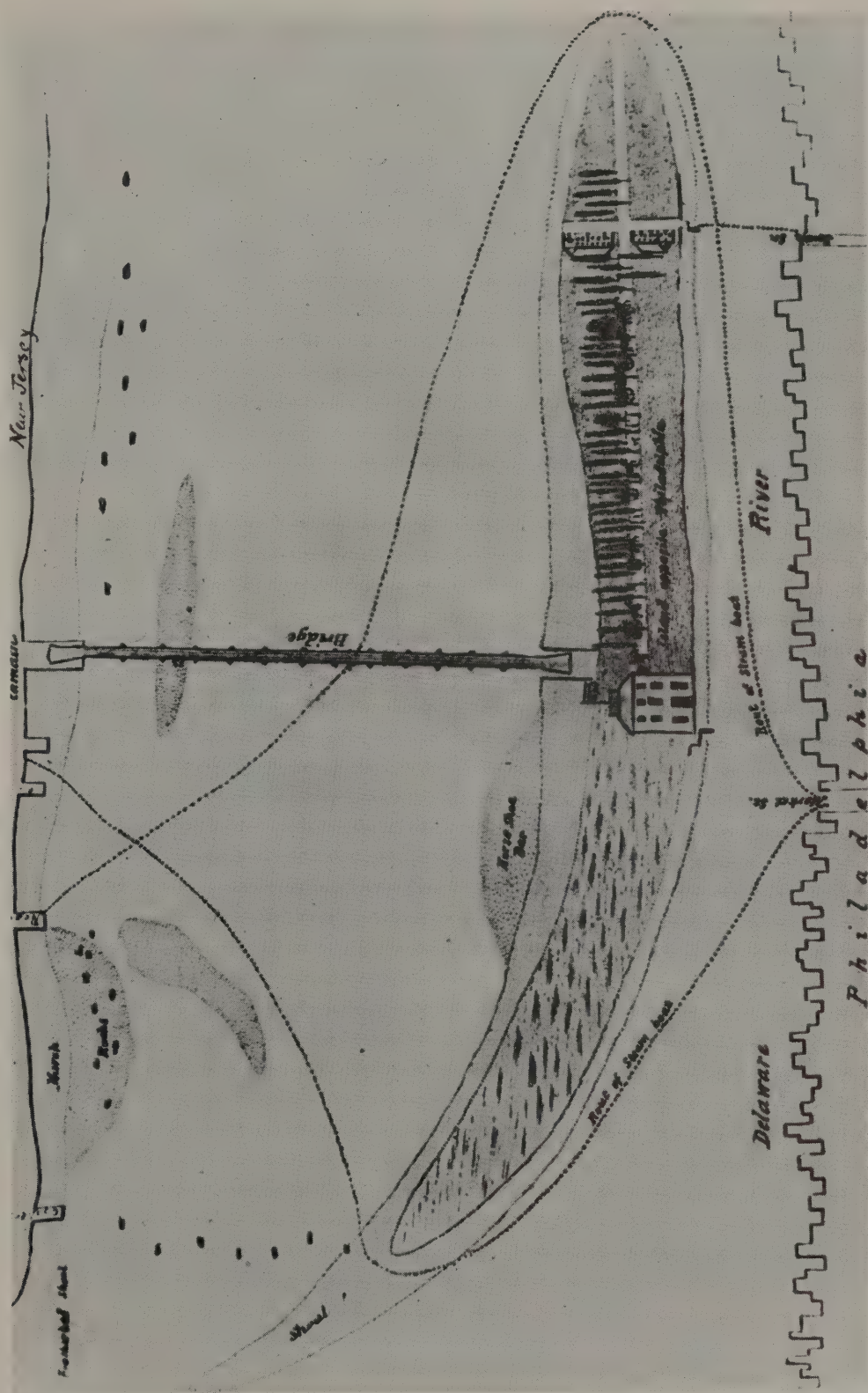
The Middle Ferry or Market Street Bridge was completed in 1806. It took six years to build because the coffer-dams, used in constructing the piers, often flooded. It was widened to include railroad tracks in 1851 and was burned in 1875. The boat with the folding masts was one of a type built especially for ducking under the Schuylkill bridges. A Durham boat is heading up the river. (From a painting by John J. Barralet. Courtesy of Philadelphia Museum of Art.)



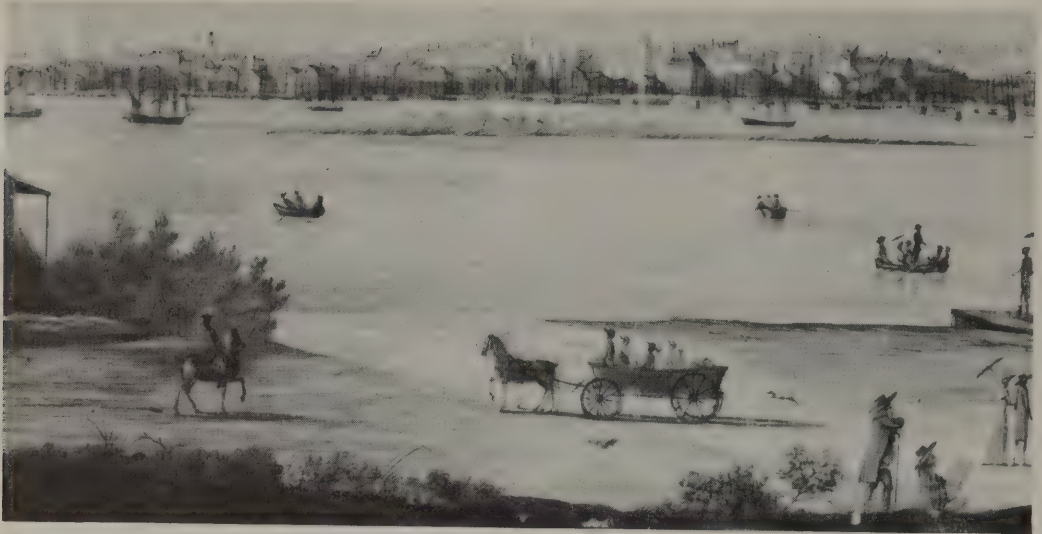
Three kinds of ferries were used before the advent of steam. The smallest were light rowboats or "wherries." The next largest were "horse-boats," capable of carrying horses, carriages, and cattle. Largest of all were "team boats" propelled by horses walking on a tread wheel which turned a shaft connected with paddle wheels. Team ferries stopped from 12 to 1 to feed the horses. (Courtesy of Camden County Historical Society.)



In 1845 William Cooper sketched this northernmost of the three Camden ferry landings, as he recollected it. (Courtesy of Camden County Historical Society.)



Plan for a bridge (12 feet above water and 36 feet wide) from Camden to Windmill Island. Proposed in 1819 to speed crossing without blocking the channel on the Philadelphia side where the roadway would connect with a ferry. The Philadelphia City Council opposed the plan and, as a result, no bridge connected the two cities until 1926. (Courtesy of Camden County Historical Society.)



Philadelphia, as seen from Camden, about 1810. Market Street is directly opposite. Windmill Island, in the middle of the river, had long since lost its windmill. Camden was still little more than the place where stagecoaches and ferries met, with taverns to tend to the needs of hungry and thirsty travelers. The river steamboat is probably



A. B. Durand has drawn and engraved a picture of the Water Gap showing crossings being made by a "horse ferry" and by a small flatboat. (Courtesy of New York Public Library, Ford Collection.)



John Stevens' *Phoenix* which had just begun to run on the Delaware. (Water color and gouache drawing by J. L. Bouquet de Woiseri. Courtesy of New York Public Library, Stokes Collection.)



Fulton's *Clermont* was completed in 1807 a few weeks ahead of John Stevens' *Phoenix*, and, since Fulton and Livingston had a New York State monopoly, Stevens sent his steamboat to the Delaware. She made the voyage from Hoboken to Philadelphia through the open sea in thirteen days. Then she ran between Philadelphia and Bordentown. She had 25 cabin and 12 steerage berths. She used sail, if the wind was favorable, to save fuel. (Courtesy of Atwater Kent Museum.)

As this map shows, Philadelphia was still, in 1802, centered on the Delaware River even though streets had been laid out all the way to the Schuylkill. Camden was little more than a landing place for the three ferries which were a monopoly of the Cooper family. Both of the river islands were well above high water and were about to become one. Three bridges crossed the Schuylkill; each known by the name of the ferry it had replaced. (Courtesy of New York Public Library, Stokes Collection.)



VI

Canals, Steamboats, and Railroads

(1815-1850)

PEACE, rapid growth of population, and westward expansion stimulated commercial activity. After the Peace of Ghent (1815) there was widespread interest in canal construction. The advantages of a water connection between the Chesapeake and Delaware Bays had been talked about since Colonial times. Digging began in 1804 but, because of financial difficulties, the Chesapeake & Delaware Canal was not completed until 1829. Traffic across the peninsula between the two bays was so heavy that it supported not only the canal and a previously constructed turnpike, but also, within a few years, the New Castle & Frenchtown Railroad, one of the first railroads in America.

The C. & D. canal was, in effect, a southwest extension of the Delaware River. Up-river at Bordentown another canal was built across New Jersey effecting an extension of the Delaware in a northeasterly direction. In this case, the railroad, as well as the turnpike, preceded the canal. The Camden & Amboy Railroad was completed in 1834, four years before the completion of the Delaware & Raritan Canal.

While these canals extended the Delaware's reach southward, towards Baltimore, and northward, towards New York, a revolutionary change was taking place on the River itself. Shallops and sailing packets, at the mercy of uncertain winds in the narrow confines of the River, were being replaced by steamboats. Improved engines were making breakdowns less frequent than in the days of Fitch. Several lines were soon competing on the routes from Philadelphia southward to Wilmington and New Castle and northward to Burlington, Bordentown, and Trenton.

Since Revolutionary times, Bush's and Warner's sailing packet lines had operated between Philadelphia and Wilmington. They were now having to meet the challenge of steamboats and of railroads. After four separate railroads were joined together to form the Philadelphia, Wilmington, and Baltimore Railroad, the competition between it and the steamboat lines became severe and, at times, cut-throat. For example, in 1836 the railroad fare from Philadelphia to Wilmington was lowered to 12½ cents, forcing the steamboats to reduce theirs to 10 cents. The railroad to Baltimore was hampered by having to ferry across the Susquehanna which was not bridged

until 1866. A new steamboat line, beginning in 1844, went the whole distance between Philadelphia and Baltimore by water. It built narrow screw-propelled steamboats which fitted the canal locks and it advertised itself as the "Ericsson Line," emphasizing its use of the screw which had only recently been introduced to this country by the Swedish engineer-inventor John Ericsson.

Competition involving steamboats, stagecoaches, and railroads was also severe on the route between Philadelphia and New York. The first steamboat on this line was Stevens' *Phoenix*. In 1813 this pioneer vessel was replaced by the steamboats *Eagle* and *Philadelphia*. John Stevens' son Robert managed this line and, upon its completion, the Camden & Amboy Railroad. He made astute arrangements for stagecoach connections while the railroad was being built and for steam ferry connections when the railroad reached its terminus at Camden. Steamboats continued to run to Bordentown and Trenton in spite of the railroads. In fact, the railroads did not become efficient freight carriers until the 1850's and even after that there was enough traffic to support both kinds of transportation.

The Camden & Amboy Railroad had an arrangement with the State of New Jersey whereby the state received a share of the profits and, in return, prevented the construction of any more railroads on the south bank of the river. Furthermore, the Camden & Amboy Railroad and the Delaware & Raritan Canal, which paralleled it, were jointly owned. The railroad took care of passengers and the canal took freight. Some competition developed in Pennsylvania where another railroad was chartered in 1833 and gradually extended its tracks from Tacony (outside of Philadelphia) to Morrisville, then by bridge to Trenton, and, finally, all the way to the Hudson River at New York.

Population concentrated along the Delaware from Trenton to Wilmington was sufficient to support all this activity. On the northerly reaches of the river, above Trenton, population was much thinner and the main support for canal and railroad building was the increasing demand for Pennsylvania's coal. Here the Delaware and its tributaries were too swift and shallow for profitable steamboat operation. Beginning about 1820, some coal came to Philadelphia by raft on the Schuylkill and by "arks" on the Lehigh. In the 1830's the transport of coal was expedited by canals along the Schuylkill, the Lehigh, and along the Delaware from Easton to Bristol. An additional outlet was provided by the Delaware & Hudson Canal which connected the Carbondale coal region with the Hudson by way of Port Jervis.

The gold rush of 1849 caused a rise in prices which stimulated business activity until a decade later when the question of secession came to overshadow everything else.



New Castle about 1820. At that time steamboats were running to Philadelphia but the Baltimore stagecoaches had not yet been superseded by the railroad. (Reproduction by R. Shaw of an original by an unknown artist. Courtesy of Historical Society of Delaware.)

CHESAPEAKE AND DELAWARE CANAL.

Notice is hereby given, that this *CANAL* is
NOW OPEN FOR NAVIGATION.

The Locks are 100 feet in length, by 22 feet in width, and the Canal can be navigated by Vessels within those dimensions, and drawing 7 feet of water.

The rates of Toll have been fixed so low, as to make this the *CHEAPEST* as well as the most *EXPEDITIOUS* and *Safe* channel of communication, between the waters of the Chesapeake and Delaware.

Horses for towing vessels may be hired at reasonable prices at each end of the Canal.

Any information in relation to the Canal, rates of Toll, &c. may be had, on application at the Company's Office, No. 44 Walnut Street, Philadelphia.

H. D. GILPIN, *Secretary.*

ROBERT M. LEWIS, *President.*
Chesapeake & Delaware Canal Company.

The opening of the C. & D. canal in 1829 was more than a quarter of a century after the organization of the company. The work was slow and costly, being done by picks and shovels with the dirt hauled away by mule-cart. The costs were met only with the help of lotteries and grants from Delaware, Maryland, Pennsylvania, and the Federal Government. The size of the locks limited their use to vessels of under 100 feet in length, 22 feet width, and 7 feet depth. (Courtesy of Historical Society of Delaware.)

EVENING LINE OF STEAM BOATS FOR PHILADELPHIA.



VIA NEWCASTLE & FRENCHTOWN RAIL ROAD.



The Steam Boats and Cars of this Line have been in complete order, have commenced their regular trips from Baltimore and Philadelphia.

Leaving Bowly's Wharf, Baltimore, at 6 o'clock, P. M.

" Dockest. " Philadelphia, at " P. M.

DAILY EXCEPT SUNDAY.

The subscribers take great pleasure in assuring the public, that the care, attention, and comforts so much admired heretofore by the passengers in this Line, will be strictly adhered to.

PASSAGE THROUGH \$4. ALL BAGGAGE AT ITS OWNER'S RISK. MEALS AS USUAL.

Freight by this Line will meet with despatch, care, and attention, and at moderate prices.

Baltimore, March 1870.

T. SHEPPARD, Agent.



The Baltimore & Philadelphia Steamboat Co., organized in 1844, built narrow, shallow-draft boats to fit the canal locks. They were propelled by the Ericsson screw instead of by bulging paddlewheels. Although this made them suitable for the canal it also made them slightly topheavy and unsuitable for rough water. (Courtesy of Historical Society of Maryland.)

SUNDAY TRIP TO Salem.



The excursion habit began early in steamboat history. This advertisement was intended to appeal to Philadelphians curious to see Salem because of its historic Oak and Quaker connections. (Courtesy of Salem County Historical Society.)

On Sunday moning next Sept. 15th.

**THE STEAMBOAT CLIFTON,
CAPT. BOON, WILL LEAVE RACE ST. AT 7 O'CLOCK,**

For Salem and Delaware city, touching at Chester, Hook, Pennsgrove, and New Castle; and return the same afternoon, stoping at Catherine St. wharf going and returning.

FARE for the TRIP \$1

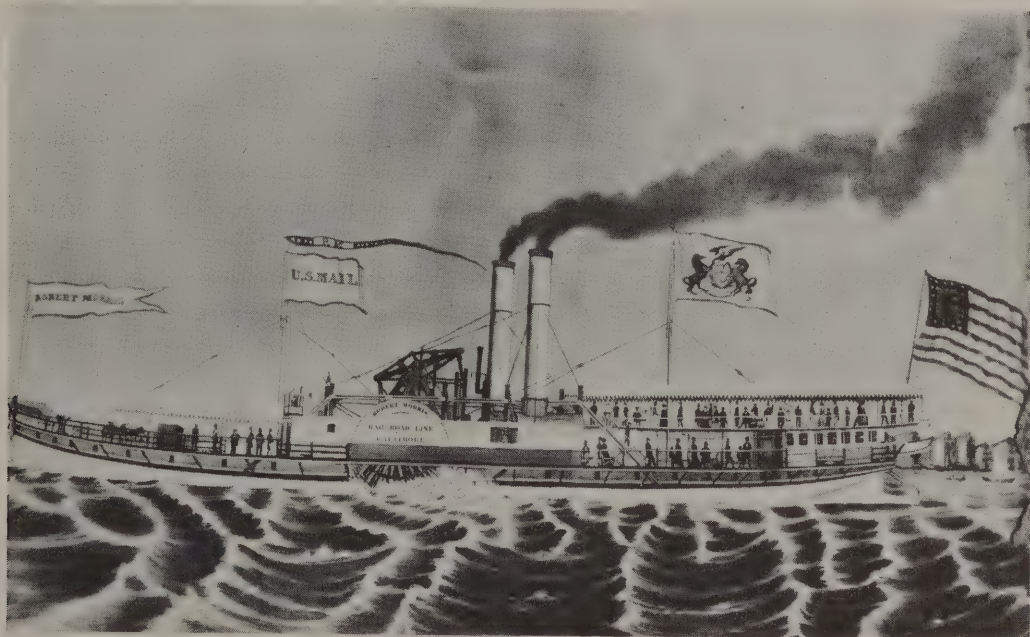
Breakfast provided on board. Sept. 11th 1839.



The *Clifton* in this drawing appears much less exciting than in the advertisement. The four belching smokestacks have been reduced to one. She was 175 tons and was built in New York in 1837. The warehouse shown in this picture of the Salem steamboat wharf is still standing. (Courtesy of Salem County Historical Society.)



An unusual daguerreotype showing John Ericsson, the Swedish inventor, seated between John Bloodgood and P. B. Tyler who bought an interest in his hot-air engine. Ericsson came to America in 1839 and became a citizen in 1848. He designed the small iron steamboat *Robert Stockton* which was used as a tug on the Delaware & Raritan Canal, where it demonstrated the possibilities of screw propulsion. (Courtesy of American Swedish Historical Museum.)



When the comfortable-looking 279 ton *Robert Morris* was built in 1830 she was considered one of the fastest of her size. She ran from Philadelphia to New Castle and also to Burlington. Her 592 h.p. engine, built by Thomas Holloway of Philadelphia, ran remarkably well for more than forty years. (Drawn by W. H. Rease. Courtesy of Historical Society of Delaware.)



In his painting of the Schuylkill at the water-works, Thomas Birch shows the kind of steamboat used on the canal, together with several small rowboats and sailboats typical of that river. (Courtesy of Pennsylvania Academy of the Fine Arts.)



The *Philadelphia*, or "Old Sal," as she was affectionately called, was one of the earliest steamboats running between Philadelphia and Bordentown. (Courtesy of Mariners' Museum, Newport News, Va.)



In Birch's painting of the Delaware, below the old Philadelphia Navy Yard, the steamboat passing the shallop seems to symbolize the beginning of the end for sail in competition with steam. (Courtesy of Ridgway Branch, Philadelphia Free Library.)



The foot of Market Street was always one of the busiest points on the Philadelphia waterfront. (Painting by W. E. Smith. Courtesy of Camden County Historical Society.)



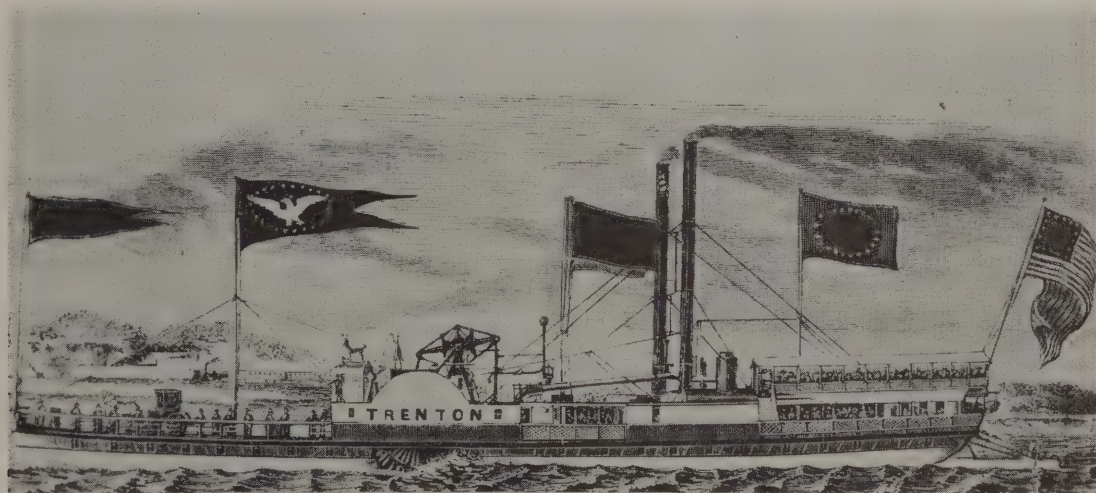
From the vantage point of the roof of the huge Ship House at the Navy Yard the artist, I. W. Hill, painted a view of the river, the docks, and the nearby houses as they looked in 1836. The shot tower, so prominent at that time, is still standing but is no longer prominent. (Courtesy of Atwater Kent Museum.)



D. J. Kennedy painted this water-color in 1837. Not long after that the fish market, which had enjoyed such a choice location in the middle of Market Street for over a hundred years, was torn down. (Courtesy of Historical Society of Pennsylvania.)



The steam ferry was the reason for cutting a channel through the middle of Windmill Island. This was done in 1838, about seven years before this view from Walnut Street wharf was painted by an unknown artist. The bathing establishment was started in the 1820's. (Courtesy of Camden County Historical Society.)



The Union Line which connected with the Camden & Amboy Railroad at Bordentown operated this vessel. She was built by R. L. Stevens at Hoboken in 1825 and continued in service until the 1860's. When she was new, she was the fastest boat on the river. (Courtesy of Camden County Historical Society.)



The steamboat came to Bordentown before the steam locomotive. About 1830 Charles Bodner painted the Amboy stagecoaches meeting the steamboat for Philadelphia. (Courtesy of Library of Congress.)



E. L. Henry painted this delightful picture of the steamboat *William Penn* meeting the first Camden & Amboy Railroad train. The locomotive was named "John Bull," built in England by Robert Stephenson, and shipped to this country in pieces in 1831. (From the original in the New Jersey Historical Society.)



Steamboats going to Bordentown habitually stopped at Burlington, the 17th century provincial capital and, before the Revolution, a port that rivaled Philadelphia. The steamboat *Trenton* is shown passing the Burlington riverfront area known as "Green Bank," a popular place for promenading where the lawns of handsome houses reached to the river. (Courtesy of Burlington County Historical Society.)



The Burlington Steam Sawmill goes to work on some logs as a shallop stands by ready to take aboard a cargo of sawed timber. The Water Works are next door. (Courtesy of Burlington County Historical Society.)



About halfway between Burlington and Bordentown on the river is the newer and smaller town of Florence. (Courtesy of Burlington County Historical Society.)



Burlington had the first free school supported by public funds in this country. The funds came from rentals on city-owned Burlington Island. It also had the first church school for girls, St. Mary's Hall, which is shown here. It was founded by Bishop G. W. Doane of the Episcopal Church, in 1837. (Courtesy of Burlington County Historical Society.)



Trenton in 1850 was a busy city, served by railroad, steamboat, and canal. The need of a canal at this point is shown by the rocks in the "falls." (Drawn by E. Whitefield, Courtesy of New York Public Library.)



The canal from Easton to Bristol, which was an essential extension of the Lehigh Canal, was known as the "Delaware Division Canal." The artist A. Köllner made this water-color picture of the canal at Point Pleasant, about midway between Easton and Bristol. Many of the canal boats, such as the one in this picture, were hinged in the middle to facilitate turning. (Courtesy of Historical Society of Pennsylvania.)



View of the Delaware from above Lumberville, Pa. (Painted by Köllner, 1877.)

VII

The Problems of Sail

(1815-1850)

DURING the troubled years after the Revolution all American ports were under the same handicaps, as far as foreign trade was concerned. However, the ports on the Delaware had some special problems of their own. The entrance to the Bay was particularly hazardous in stormy weather since the prevailing wind blew directly into the Bay and there was no shelter for its whole length, except for shallow draft vessels which could retreat up one of the creeks. In winter ice was another hazard. Quick-freezing fresh water and the habitually low temperatures made most of the river unusable during the coldest months. In addition, the Bay and River were long, and the channel was winding. This increased the length of the voyage and added to the uncertainties always present where wind and sail provide the motive force.

Constant efforts were made to reduce these handicaps: by means of a breakwater at the entrance to the Bay; by the placement of channel markers and lighthouses; by dredging better channels; by the construction of ice harbors, etc. These things helped, but Delaware ports were fated to fall behind more favorably located ones. New York packet ships had a definite advantage over those from Philadelphia which must traverse ninety miles of narrow channel. In the packet business regularity and speed were essential. The Black Ball Line, the first of the New York packet lines, began operations in 1818 and was soon joined by rival lines until, before long, there were weekly sailings. As a result, the packet business gravitated to that port.

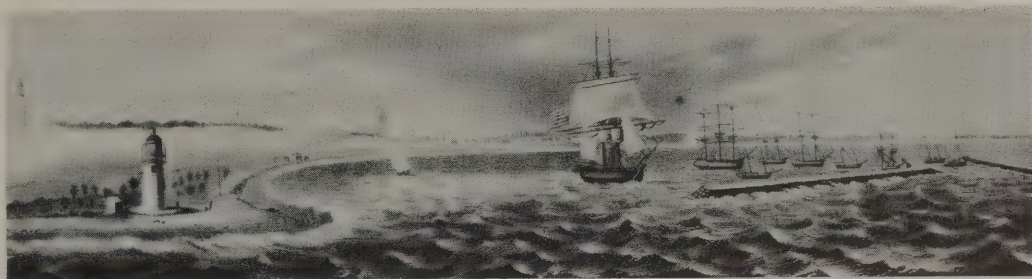
Nevertheless, Philadelphia had its own packet lines. Thomas P. Cope started one in 1821 which gained a reputation for regularity and reliability. His ships ran to Liverpool where he had traded since 1807. His first two packets were the 290-ton *Lancaster* and the 397-ton *Tuscarora*. Monthly sailings were assured by the addition of four more vessels, the *Montezuma*, *Algonquin*, *Monongehela*, and *Susquehanna*. The cream of the trade was captured by the New York packets but the Cope Line found it profitable to fill its vessels with iron rails, and Irish and German immigrants to help lay them.

A "New" Line began running from Philadelphia to Liverpool in 1822. After a few years its ships went via Savannah in an endeavor to secure for itself a share in the booming cotton trade. Cotton ordinarily found its way to New York for trans-shipment to Liverpool by means of coastal packets and later by rail. A third Philadelphia packet line ran two ships to London.

Another notably profitable use of the sailing ship was for catching whales. To gain a share of this wealth, a Whaling Company was organized in Wilmington in 1833. There had been occasions when whales were caught off the Capes but this was a distinctly new venture for this region. The company's first ship was the *Ceres*, a New Bedford whaleship. Her first voyage was a disappointment. After a forty-two month cruise she returned with only 800 barrels, whereas 2,000 were considered merely fair. Four additional ships were used but none did particularly well, especially in catching the more valuable sperm whales. The company went out of business in 1846.

If the Delaware was an awkward entrance-way for fast sailing packets, it would have been even more so for clippers. In the days of the gold rush to California, the saving of minutes seemed to be important where clippers were concerned, and to be forced to tack down the river would have placed too great a strain on the nerves of the iron men who sailed them. This is not to say that the gold fever was unknown in this region. Many Forty-niners began their journey here although they may have sailed from New York.

Since the problems of sail were greater in the Delaware than elsewhere, the decline of the sailing ship here was accelerated. One effect of this was to quicken interest in the use of steam power. It is reasonable to assume that this is one of the reasons why Philadelphia became a leader in the manufacture of machinery and why the Delaware became a leading iron steamship building region.



After prolonged agitation by shipowners the Government, in 1828, appropriated money for building this breakwater out of granite quarried along the Brandywine. The pilot town of Lewes can be seen in the background. (Courtesy of the Historical Society of Pennsylvania.)



Piloting has as long a history as shipping itself. Among the earliest Delaware pilots were some Indians. In the 19th century the pilots owned boats on shares and went far out to sea in search of business, since the first to step aboard the incoming ship got the job. Their boats, such as the one in this picture, had to be both seaworthy and speedy. (Courtesy of Atwater Kent Museum.)

TO THE EDITOR OF THE DELAWARE STATE JOURNAL.

Sir---In a communication signed A. which appeared in your paper of the 11th inst., there are some very confident statements made as to the superior safety and convenience of the mouth of Christiana creek, as a place of resort for shipping in the winter season, as compared with the harbor at New-Castle, and an appeal is made to the Captains now lying at New-Castle for the truth of the writer's assertions.

The undersigned, Captains and Pilots, now lying at New-Castle, beg leave to say in answer to this appeal, that the mouth of the Christiana creek, in their opinion, is neither a *practicable* nor a *safe place of refuge* for vessels from the dangers of the Delaware in the winter season. They say further, that the harbour at New-Castle, bad as its condition now is, is the *most convenient*, as well as the *safest place of resort* between the Capes and Philadelphia, for vessels of every class, during the obstruction of the navigation of the Delaware, by ice.

When the General Government shall, by a liberal appropriation, repair the errors which have been committed by its agents in relation to the latter harbour, and erect new piers judiciously located, we have no hesitation in saying, that the Captains and Pilots will look to it, in the protection and safety it will then afford to the vessels and property under their charge, not only as the *best*, but the only proper place of resort in the winter season.

By publishing this communication, you will confer a favor on the undersigned.

New-Castle, March 12, 1836.

W. C. Stotesberry, captain brig Emily.
C. H. Shankland, captain barque Madeline.
O. S. Brown, captain ship Monongahela.
Henry S. Brown, captain ship Star.
John Thompson, captain brig John Bartlett.
George G. Ryder, captain brig Oak.
Charles Carty, captain brig New Hanover.
Daniel Brewton, Jr. captain brig Franklin.
A. Morrell, captain brig Wm. Henry.
Noah Hopkins, captain schr. Victoria.
Levi Pane, captain schr. Henry.
James P. Hall, captain schr. Henry Cameron.
David Davidson Jr. captain schr. Alexander.
Godfrey Lotts, captain schr. Henry.
John Yeates, captain schr. Little John.
John Ryder, captain brig Ella.
G. Bishop, captain brig Ottawa.
Addison Drinkwater, captain brig Rice Plant.
Thomas S. Steele, schr. Henry A. Wise.
Reuben Bray, Jr. captain schr. Wyoming.
Freeman Harding, captain schr. Franklin.
Alexander Farnham, captain schr. Albion.
James Lotts, captain schr. Pacific.
David Stewart, captain sloop Three Friends.

Francis Kelley, captain schr. Margaret.
Josiah Brooks, captain Maria Louise.

PILOTS.

Wm. Schellenger, pilot ship Walter.
John Saunders, pilot ship Monongahela.
Daniel Baker, pilot ship Elizabeth Frith.
Aaron Edmonds, pilot ship Star.
James G. Mason, pilot brig Eliza & Susan.
R. Wessel, pilot brig Emily.
Merriman Hughes, pilot brig Rice Plant.
David J. Marshall, pilot brig Ann Eliza L.
Isaac Smith, pilot brig Franklin.
James Murray, pilot brig William & Francis.
John Puller, pilot barque Isabella.
John Hany, pilot brig John Bartlett.
Eguch Willets, pilot brig Union.
James Wilson, pilot brig New Hanover.
Philip Hand, pilot schr. Henry Cameron.
Bennett Wadman, pilot barque Madeline.
Page Stites, pilot schr. Albion.
Jeremiah Schellenger, pilot schr. H. A. Wise.

New Castle and Wilmington were rival ports. The Custom House was moved to Wilmington in 1800. In this broadside, dated 1836, a number of captains and pilots declare New Castle to be a safer refuge from floating ice than the mouth of "Christiana creek" and, in fact, the safest between the Capes and Philadelphia. But it needs, they say, some new ice piers "judicially located." (Courtesy of Richard S. Rodney.)



In the early part of the 19th century skating and ox-roasts on the frozen river were not unusual forms of recreation for Philadelphians. If this January, 1852, scene may be believed, most of the populace cavorted on the ice. With the steam ferries immobilized, travelers walked across the river or were pushed across on wherries equipped with runners. (Courtesy of Harold H. Kynett.)



Another freezing winter in 1856 inspired this lithograph. While ships, including a steam warship, are tied to their docks, the populace skates, plays snap-the-whip, or just promenades. Hucksters, with or without booths, do a flourishing business. (Courtesy of Harry Shaw Newman, The Old Print Shop.)



The possible importation of communicable diseases was a constant concern of the ports of entry. After the yellow fever epidemic of 1797 the "Lazaretto" or Quarantine Station was erected at Tinicum, near Darby Creek. (Courtesy of Atwater Kent Museum.)



Thomas Birch painted the Philadelphia waterfront as it was about 1850. The Ship House at the Navy Yard can be seen in the distance beyond Smith's Island. (Courtesy of Harold H. Kynett.)



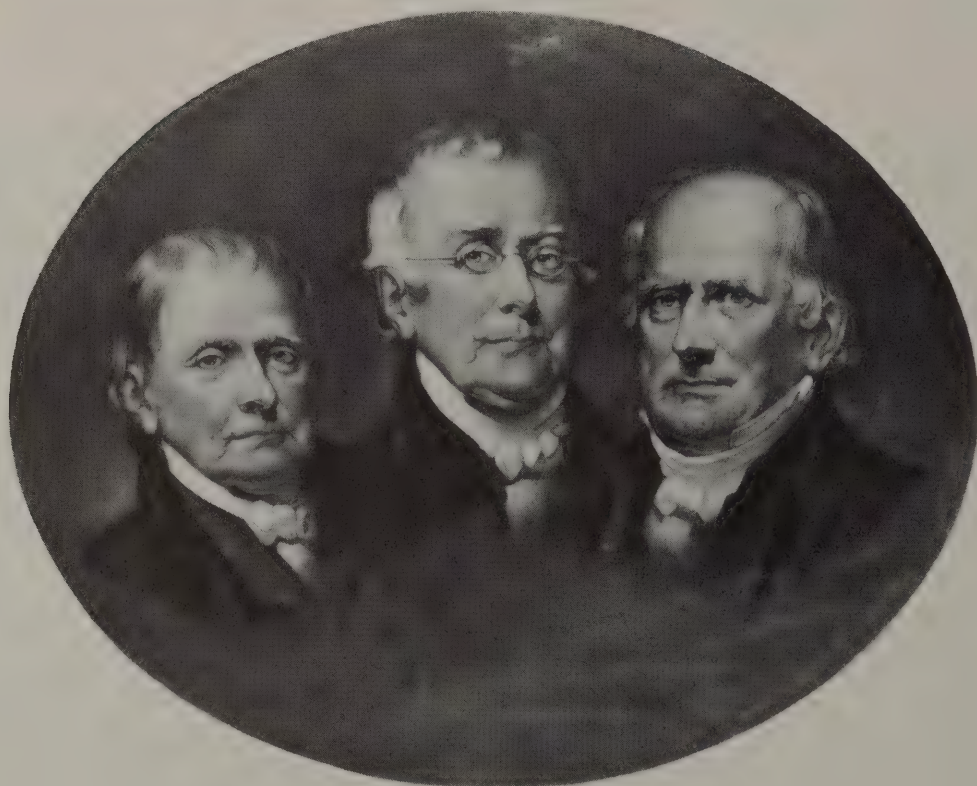
In 1839 the muddy, narrow, and irregular roadway along the Philadelphia waterfront was straightened and widened to fifty feet, as the result of a special bequest made by Stephen Girard. It was widened again to 150 feet in 1897. D. J. Kennedy's water-color shows Delaware Avenue in 1866 and includes the Penrose warehouse built in 1784. (Courtesy of Historical Society of Pennsylvania.)



The Philadelphia vessel *Lovely Matilda*, Captain Benjamin Huggins, was used in trade with Europe and this fine ship portrait is the work of Antoine Roux who made the painting at Marseilles in 1808. (Courtesy of Peabody Museum.)



The *Thomas P. Cope*, named after the line's founder, was launched in 1839 and burned at sea in 1846. (Courtesy of Mrs. George Emlen.)



Thomas P. Cope, founder of the Liverpool Packet Line, and his two younger brothers, Jasper, on the left, and Israel, on the right. The line began operations in 1821 with the two ships *Lancaster* and *Tuscarora*. (Courtesy of Historical Society of Pennsylvania.)



The *Tonawanda*, at one time the pride of Cope's Black Cross Line, was captured by the *Alabama* in 1862 and released when her captain gave bond for \$80,000. She became a coal barge in 1887. (Water-color by D. J. Kennedy. Courtesy of Historical Society of Pennsylvania.)



The Philadelphia ship *Phoenix*, Captain Conyngham, painted by Frederic Roux at Marseilles in 1824. She was in the China trade under the ownership of Lewis Clapier. These vessels habitually carried guns and this one had an eight-gun broadside. (Courtesy of the Pennsylvania Museum of Art.)



The Cope Line's *Monongahela*. The painting, showing her in three positions, is by Walters & Son. (Courtesy of Peabody Museum.)



Barque *A. L. Harvey* of Philadelphia entering Marseilles in 1852. (Painted by Honoré Pelligrue. Courtesy of Pennsylvania Museum of Art.)



George McHenry & Co.'s Philadelphia and Liverpool packet ship *Shackamaxon* was built at Philadelphia in 1851. By this time steamships were becoming a natural background feature. (Painted by C. F. Williams. Courtesy of M. V. Brewington.)



Two views of the ship *William Penn*. Steamship competition is suggested in this picture of the sailing ship tacking while the steamship in the background heads into the wind. (Courtesy of North American Insurance Co.)



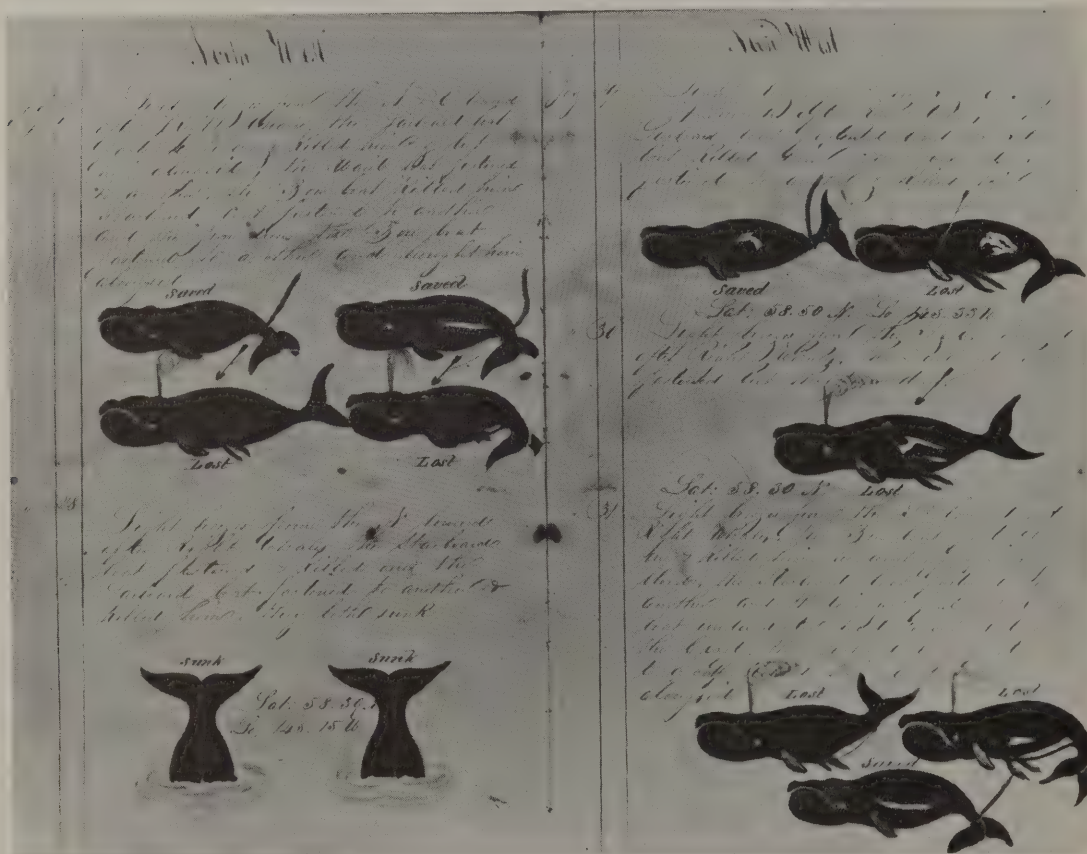
The 74-gun *U. S. S. Delaware* was the third naval vessel to have that name. She was built at the Norfolk Navy Yard in 1820 and was destroyed at the same place when that Yard was burned in 1861. The first *Delaware* was a 24-gun frigate built at Philadelphia during the Revolution and captured by the British when they occupied that city. The second was a merchant ship, also built at Philadelphia, which the Navy purchased in 1798 but restored to commercial use three years later. A fourth naval vessel of the same name was built at Newport News in 1906 and was one of America's first dreadnaughts. (Courtesy of Henry B. du Pont.)



The 120-gun ship-of-the-line *Pennsylvania* was launched at the Philadelphia Navy Yard in 1837. She was the largest sailing man-of-war ever built for the United States Navy and, at the time of her launching, the largest anywhere. She took fifteen years to build and her construction occupied nearly all the working force at the Navy Yard during that period. Designed to fight off blockaders rather than to cruise, she was not easy to maneuver and, since she was very costly to operate in peacetime, she saw little service. (Courtesy of Atwater Kent Museum.)



Some whale hunting in nearby waters was done by a few energetic fishermen from Cape May and Wilmington in early times, but the first important venture by Delaware fishermen into distant seas was that of the Wilmington Whaling Company, organized in 1833. (Courtesy of Historical Society of Delaware.)



The Whaling Company acquired five vessels. John F. Martin, mate of the *Lucy Ann*, kept a log which has been preserved. He recorded graphically the whales caught, lost, and sunk. (Courtesy of Historical Society of Delaware.)



Operations were continued for a dozen years without making the share holders rich. Sperm whales were becoming harder to come upon. However, on the plus side of the ledger, it might be mentioned that one ship, known as the "temperance ship," was reported to have effected some cures. Also, collections of knickknacks on the whatnots in sailors' homes were augmented by whales' teeth, shells, coral, and other South Sea mementoes. (Courtesy of Historical Society of Delaware.)



These drawings were made by Henry F. Lewis, one of the crew on the *Lucy Ann*. In this one he identified by name his shipmates clinging to the overturned whaleboat. (Courtesy of Historical Society of Delaware.)



The floating Church of the Redeemer was built at Bordentown in 1847 by Clement L. Dennington under the direction of the Churchman's Missionary Association for Seamen. It was moored at Dock Street Wharf, Philadelphia, until 1851 when it was towed to Camden where it served for several years until destroyed by fire. (Courtesy of Atwater Kent Museum.)



Ship *Manitou*, one of the few Delaware clippers. She was built at Cramp's shipyard. (Painting by F. Cresson Schell. Courtesy of Atwater Kent Museum.)

VIII

Iron and War

(1844-1870)

THERE was a calm before the storm of the Civil War. More and more the recreational possibilities of Delaware Bay and nearby ocean beaches were being discovered. Riverside resorts, Rehoboth, and Cape May were becoming fashionable. Hotel, steamboat, and railroad managers did their best to encourage this trend.

The beginning of a new development in shipbuilding was also discoverable in the years before the struggle over secession. The first iron twin-screw seagoing steamer in this country was built by the Harlan & Hollingsworth Company of Wilmington. It was the *Bangor*, launched in 1844 and the third vessel built by this railroad car building company. The other two were small river steamboats. Up to 1851 the Harlan & Hollingsworth Company built a total of only nine vessels but in that year they acquired a yard of their own and, in another ten years, were known as ship rather than car builders.

The advantages of iron ships was not yet apparent. Wood was still plentiful in America and wooden ships were cheaper than iron ones. Delaware shipyards had the advantage, however, of being located close to the sources of iron and steel. This would become important in the future.

The Delaware River reaches the sea not far from the famous line surveyed by Mason and Dixon. The people in the Bay area had mixed feelings about slavery but they remained loyal to the Union. Since Maryland was a border and a doubtful state, one of the first acts of the government was to call for Northern troops to help make Washington secure. These reinforcements came by train to Camden and then by ferry to Philadelphia where they entrained again for Washington.

Although the South had almost no Navy, there was, at first, some concern over possible raids upon the Delaware. But on Pea Patch Island, off Delaware City, was the strongly built and recently enlarged Fort Delaware. It was entirely capable of beating off attack by anything the Southern States could send against it.

As it turned out, the war history of Fort Delaware was to be unheroic. Instead of beating off attack its garrison was employed guarding prisoners

crowded within and without its walls. The first prisoners to arrive were 250 from Stonewall Jackson's army. Unprepared for this development, Captain Gibson, the commanding officer, solved his housing problem within the fortress walls by putting the overflow in the dungeons. After an inspection by the Commissary General of Prisons, in June, 1862, barracks for 2,000 were ordered to be built outside the fort. However, within a month and before any barracks were built, there were already 3,000 prisoners on the island. Captain Gibson requested additional guards, a request that was refused but was almost immediately justified when 200 prisoners escaped. Then reinforcements did come and also a major, later a colonel, and eventually a brigadier-general to take command. During the winter of 1862 most of the prisoners were exchanged. About the same time it was decided to make the fort the largest prison-camp in the country. Additional barracks were constructed all over the island.

As the war continued the prison population rapidly increased. The peak was reached in July, 1863, after the Battle of Gettysburg, when there were 12,595 prisoners on the island. After that the number varied, but there were never less than 6,000 until the release of the last prisoners in 1865. Fort Delaware acquired a reputation in the South akin to the bad reputation of Andersonville in the North. The island was a bleak place in mid-winter and food, especially drinking water, presented problems not easily solved. A water-boat was sent out to fill its tanks from creek water above tidewater salt, but it appears that the water-boat seldom got to that point in the creek. Disease was rampant. About 2,700 prisoners died and along with them a number of the Union garrison. All were buried at Finn's Point, on the Jersey shore, where there is today a monument to the Unknown Southern Soldiers.

Across from the fort was the entrance to the Chesapeake and Delaware Canal. Doubtless the prisoners observed its increased wartime activity. They must also have seen a lot of ships pass by on the River, including some new ironclads.

When the war began the North had about 90 naval vessels, of all kinds, with which to enforce the blockade proclaimed by Lincoln on April 19, 1861. Secretary Welles hastened to enlarge the Navy by purchase and construction so that, when the war ended, it was composed of 671 vessels of all types. Ordinary commerce was entirely disrupted. Southern privateers and raiders were such a serious threat that most of the deep-sea vessels not acquired by the Navy were transferred to foreign flags.

Delaware shipyards were kept busy. After the *Monitor-Merrimac* engagement, in 1862, they became centers of interest because the public was persuaded that the outcome of the war depended upon the construction of ironclads. The battle also precipitated a controversy in naval circles over

the relative value of wooden vessels protected by iron plating and the monitor type of ironclad.

When the Navy decided to build Ericsson's *Monitor*, it also contracted for a full-rigged ship with auxiliary steam engine and iron armor twelve inches thick at the waterline, tapering to five inches at the bilge. She was appropriately named *New Ironsides*. Her engine was built by Merrick & Sons of Philadelphia and her hull by Cramp. Her armor plate was made from hammered scrap iron. The *New Ironsides* saw much action but her sides were never pierced. Her end came at League Island in 1866 when she was destroyed by fire.

The *Monitor's* success caused the Navy to order several monitor-type vessels at various shipyards. An order for three was given to Harlan & Hollingsworth. Many difficulties were encountered during the construction of these monitors. For one thing, the Navy decided to modify them after they were partly constructed. The reason was that the first one finished at Boston sank immediately upon being launched. Another, built at Roach's in Chester, had to be taken to Cramp's to be rebuilt. Since Cramp's drydock was in use, she had to be hauled out by manpower working continuously over a stretch of one day and one night. Some of these monitors saw war service and some were redesignated as torpedo boats for harbor defense. They were cited by critics as an argument against the use of iron for warships.

The shipyards became idle at the war's end. Foreigners had taken over most of the oceanic commerce. The government sold its surplus shipping at bargain prices and much of it was bought up by inexperienced operators who could not make profitable use of these worn-out vessels. Capital was not attracted to steamship ventures involving large outlays in a highly competitive business. Railroad building and the exploitation of western lands were more alluring. Only coastwise shipping, where American monopoly was secure, held any promise. American oceanic shipping had fallen into a permanent decline and American shipbuilding into a temporary slump.



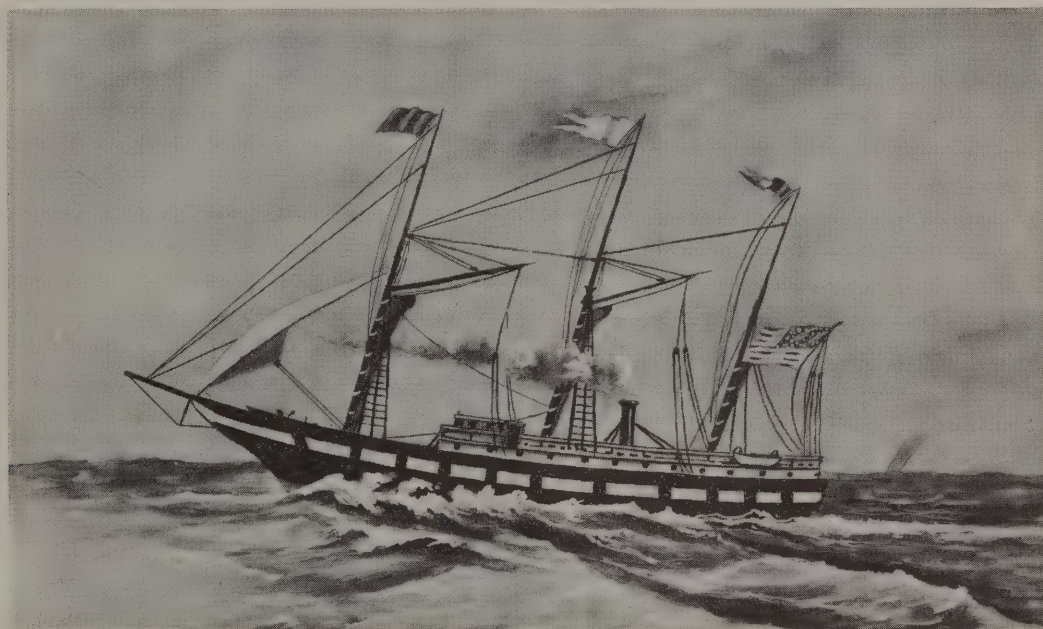
This is a view of Philadelphia from Camden as it looked in the middle of the 19th century. (Lithograph by W. Hill & Smith. Courtesy of Atwater Kent Museum.)



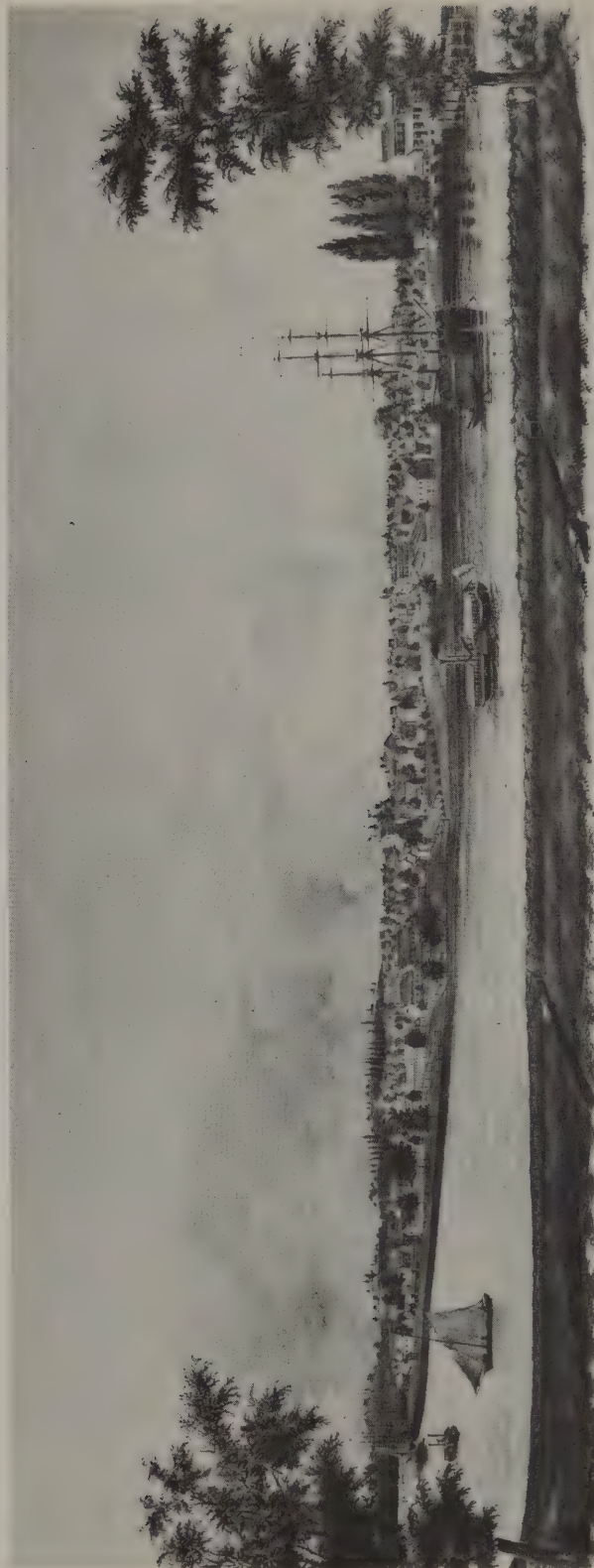
A "bird's eye view," drawn by G. Matter about 1850. It was shortly after this that Philadelphia suffered a disastrous waterfront fire and warehouse explosion which killed 28 persons and destroyed 367 dwellings. (Courtesy of Harry Shaw Newman, The Old Print Shop.)



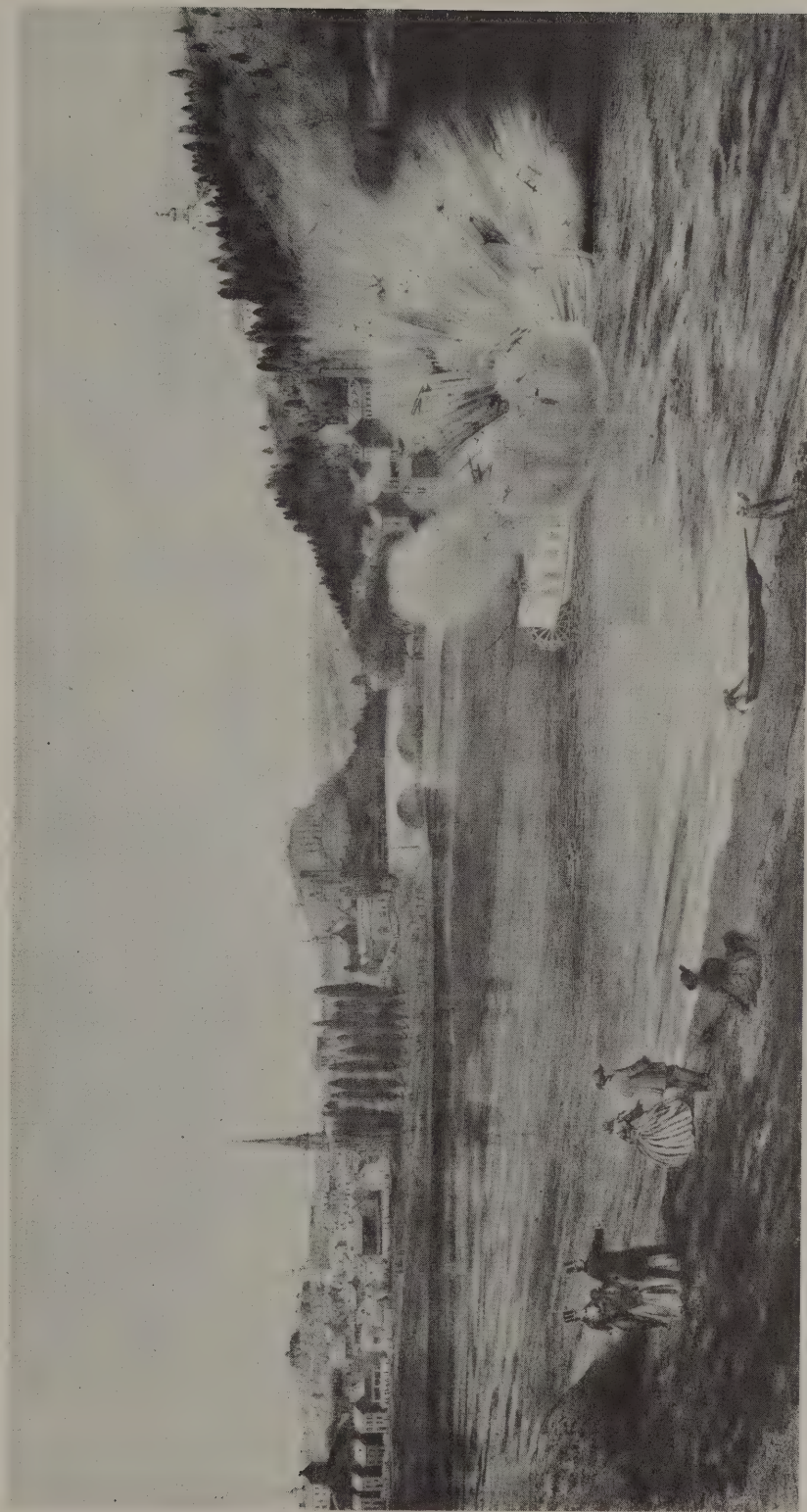
Harlan & Hollingsworth was originally a car manufacturing company and, therefore, located alongside the railroad tracks. Its back door, so to speak, was on the Christina which proved to be convenient when the company entered the shipbuilding business. (Courtesy of Historical Society of Delaware.)



The *Bangor*, Harlan & Hollingsworth hull Number 3, was built in 1844. She was twin screw and the first iron seagoing vessel built in the United States. Intended for use on the Maine coast she was bought by the government a year after launching, renamed *U. S. S. Scourge* and used in the war with Mexico. (Courtesy of Peabody Museum.)



Some of the first iron ships in America were built in Wilmington, Delaware, in the 1840's. The city's appearance, at that time, as viewed from below and across the Christina river, is indicated in this drawing by B. Glück. (Courtesy of New York Public Library.)



The *Alfred Thomas* was one of the very few steamboats ever seen on the Delaware above Trenton and she had a very brief career. Built at Easton, her boiler blew up on her trial trip. The builder and many passengers were killed on what was to have been a gala occasion. (Drawing by J. Queen. Courtesy of New York Public Library.)



The burning of the ferryboat *New Jersey* in 1858 was one of the worst harbor disasters in the history of Philadelphia. Catching fire in midstream, the boat was unable to reach its pier because of ice floes. For the same reason, rescuers were unable to reach the stricken boat. (Courtesy of Library of Congress.)



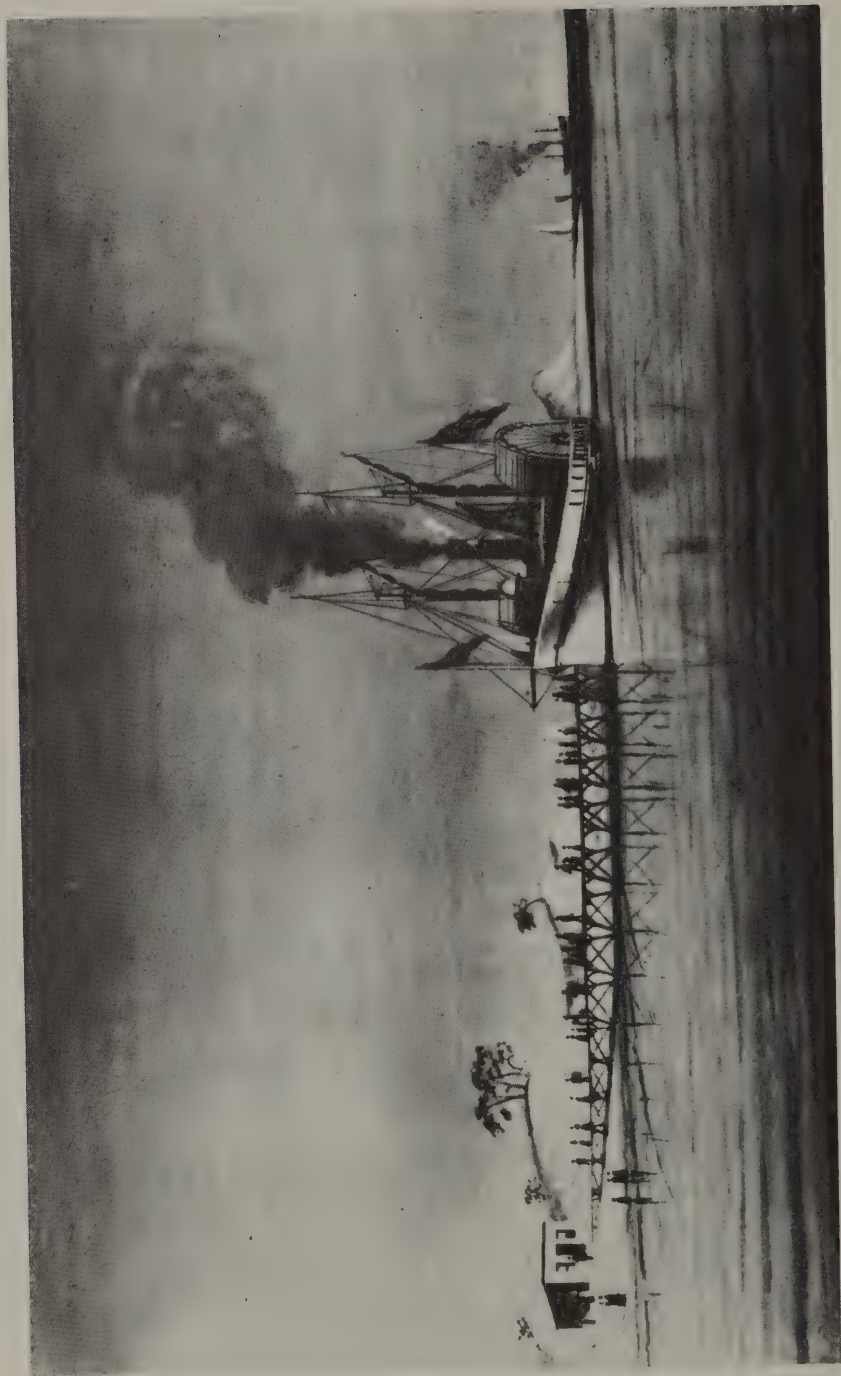
Wilmington waterfront in wartime. The Harlan & Hollingsworth yard, on the left in the foreground, has a monitor at its dock. Down the Christina, below the Market Street Bridge, is the Pusey & Jones yard. Farthest downstream is the yard of E. C. Moore. (Courtesy of the Historical Society of Delaware.)



This peaceful harvest scene with the Water Gap in the distance was painted by George Inness a year before the outbreak of the Civil War. (Courtesy of Harry Shaw Newman, The Old Print Shop.)



The Tammany Fish House was one of several Philadelphia fishing clubs with long histories. Named after a Lenape chieftain, it was located on the Jersey side of the Delaware above Petty Island. It originated, early in the 19th century, as a place for relaxation. Shad and punch were the chief attractions. (Courtesy of Historical Society of Pennsylvania.)



Steamboat landing inside Cape May, 1852. The *Delaware*, *Penobscot*, and *Kennebec* kept up a daily service between New York and Philadelphia. (D. J. Kennedy watercolor. Courtesy of Historical Society of Pennsylvania.)



The steamboats *Penobscot* and *Kennebec* ran between New York and Philadelphia stopping at Cape May, their engines assisted by sail when the wind was favorable. In 1860, the mammoth *Great Eastern* went on an excursion to Cape May but got off course and ended up at Old Point Comfort. (From "A Book of Maps" by Cape May Geographic Society.)



Cape May was at the height of its popularity. Presidents and wealthy society leaders vacationed here. It was the Newport of those times. Its great hotels are shown in this picture by Thomas Birch. (Courtesy of Historical Society of Pennsylvania.)



Arrival of troops at Philadelphia at the beginning of the Civil War. They were taken to the Union Volunteer Refreshment Saloon before boarding a train for the South. (Drawn by J. Queen. Courtesy of Harry Shaw Newman, The Old Print Shop.)



The *U. S. S. New Ironsides*, built by Cramp with engines by Merrick & Sons, was a formidable warship and the first seagoing ironclad. She was said to have been more constantly in action than any other vessel during the Civil War. Hit many times, she suffered no serious damage. (Courtesy of Atwater Kent Museum.)



The *John Boulton* was owned by the Red D or Dallett Line which carried on trade with Venezuela. She was built in Baltimore in 1858. As her British flag indicates, her registry was changed to avoid capture by Confederate raiders. (Painting by William A. K. Martin. Courtesy of Francis J. Dallett, Jr.)



League Island got its name from Lindström who judged it to be a league in circumference and so marked it on his map in 1654. It was a low marshy island when the government acquired it in 1868. It had to be filled in and connected with the mainland. The move from the old Navy Yard had only begun when D. J. Kennedy made this picture in 1874. (Courtesy of Historical Society of Pennsylvania.)



The *Princeton* was the first screw-propelled warship in the American Navy and demonstrated how the boiler and machinery could be kept below waterline. She was built at the Philadelphia Navy Yard with Ericsson's assistance. (Courtesy of Mariners' Museum, Newport News, Va.)



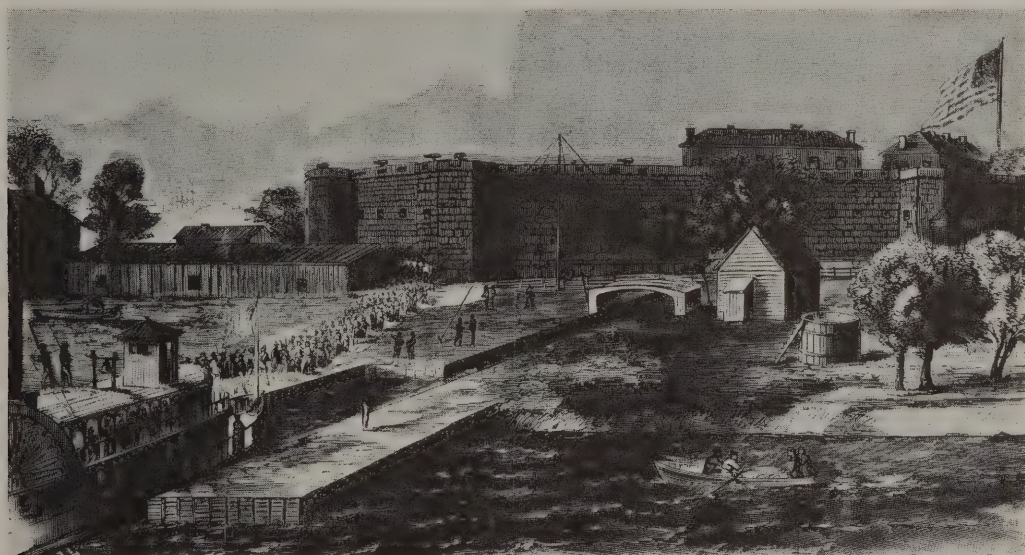
Rear Admiral Samuel F. du Pont, a Delawarean, achieved fame during the Civil War when he commanded the expedition which captured Port Royal. This was an important step in making the blockade effective.



Rear Admiral John A. Dahlgren succeeded Admiral du Pont in command of the blockading forces at Charleston. He was the son of the Swedish Consul at Philadelphia and the inventor of a new kind of gun whose value was demonstrated during the War. (Courtesy of National Archives.)



According to tradition, Pea Patch Island grew from a shoal upon which a ship was wrecked with a cargo of peas which sprouted. Thousands of piles were required to make a firm foundation for the fort. It was an unhealthy location, as its Civil War history demonstrated. (Courtesy of Historical Society of Delaware.)



Additional prisoners arriving at Fort Delaware as sketched by A. Auld and published in *Harpers Weekly*, 1863.



The Tasker Iron Works were moved from Philadelphia to the vicinity of New Castle in 1872. This location afforded room for expansion and easy access to water transportation for the iron pipe products of this company for which there was a wide market. Working at full capacity, employing about 800 persons, approximately 800 tons of piping were produced each week. This picture also indicates the kind of traffic which passed on the river in this post-war period. (Courtesy of Henry B. du Pont.)



In 1806, this wooden arch bridge was built over the Delaware at Trenton. The charter granted to the Trenton Delaware Bridge Company in 1798 forbade the construction of any other bridge within three miles without the company's permission. The Pennsylvania Railroad leased the bridge in 1871 and, shortly after, replaced it with a double-track bridge which was under construction when this photograph was taken. (Courtesy of Trenton Free Public Library.)

IX

Peacetime Activities

(1870-1890)

THE peaceful decades which followed the Civil War were characterized by a great variety of activities on the Delaware. With each spring freshet a large number of rafts came down the River. However, the railroads were increasing their lumber-carrying business and, at the same time, the demand for spars declined with the decline of the sailing ship. Starting about 1885, the number of rafts declined steadily.

The upper part of the Delaware was a good place to fish for sport but fishing, as a business, took place below the "falls" at Trenton. Sturgeon, shad, and herring fishing provided a living for many people. Water pollution was not yet a problem.

From Trenton to the Capes a large amount of freight and many passengers were transported by steamboat. Philadelphia was, of course, a center of this activity but steamboats ran to a large number of small ports, some of which were a long distance up creeks. Steamboats could compete successfully with railroads which they frequently supplemented and with which they sometimes had working agreements. For instance, some kind of coordination was essential on the water and land route from Baltimore to Cape May.

Steamships also used the Delaware. Coastal routes required substantial vessels for regular year-round use. Before the Civil War the Winsor Line began a service between Philadelphia and Boston. The Clyde Line connected Philadelphia with New York and with Norfolk. The Inman line to Liverpool had switched from Philadelphia to New York in 1857 but a new steamship line was organized by the Pennsylvania Railroad in 1871. Two years later it began a service to Liverpool with the four iron screw ships *Pennsylvania*, *Ohio*, *Indiana*, and *Illinois* built by Cramp.

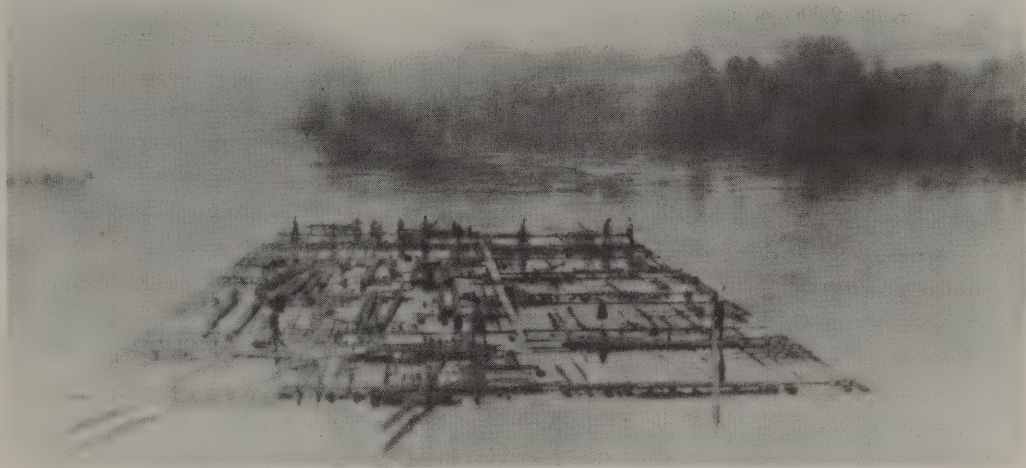
The shipbuilding business has always been particularly sensitive to the general state of the nation's economy because vessels represent such a large outlay of capital. In good times shipyards often have more work than they can handle and in bad times they have to keep going with small repair jobs.

Delaware shipyards gained a reputation for good work in the age of iron and steam as they had in the age of wood and sail. We have already mentioned that Harlan & Hollingsworth at Wilmington did pioneer work in

iron shipbuilding. Pusey & Jones and Jackson & Sharp, two other Wilmington shipyards, were also well-known for the quality of their work. At Chester John Roach took over the yard of Reaney, Son, & Archbold and built a great number of coastal vessels. At Philadelphia Neafie & Levy and William Cramp & Son were the best known builders.

The panic of 1873 put a damper on shipbuilding for about six years, after which business improved. John Roach and Charles Cramp were the leading lobbyists against repeal of the law of 1793 which forbade ship-owners buying ships abroad. American ships were more expensive than foreign-made, especially those made in England, because of the high price of iron and the cost of labor in this country.

The shipbuilding business boomed, after the government decided to build up the Navy. Over thirty war vessels were ordered during the four years from 1885 to 1889. In addition, Congress ended years of debate on the subject of subsidies and passed an ocean mail subsidy act in 1891. The large orders which resulted from these decisions by the Government made it possible for a few yards, such as Cramp's, to equip themselves to handle the construction of big ships. American private capital continued to go mainly into coastal shipping where there was no foreign competition.



This is a photograph of one of the last rafts to come down the Delaware. It was 190 feet long and 85½ feet wide. (Courtesy of Mrs. Walter J. Hankins.)



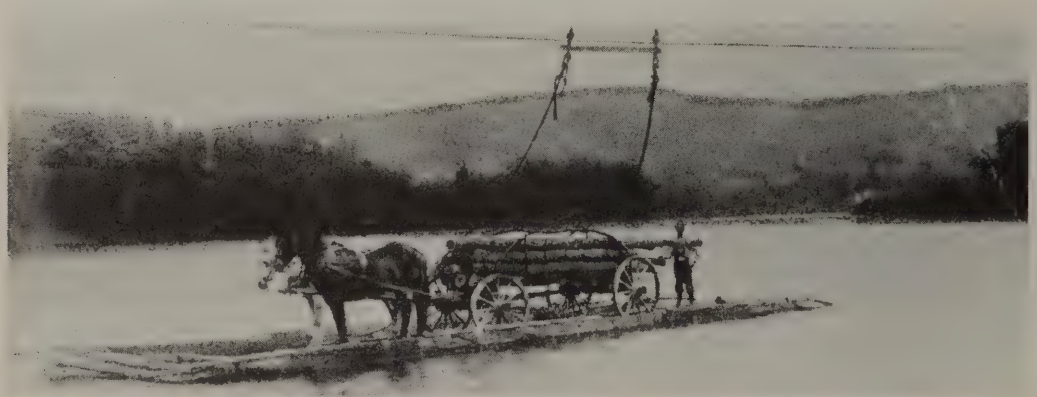
George Inness made this fine painting of rafting on the upper Delaware in the 1860's. A shower half-hides the Water Gap in the distance. On one raft a meal is being cooked. Another has stopped at a point on the shore. The railroad on the left is destined to take over most of the transport of lumber before the end of the century. (Courtesy of Metropolitan Museum of Art.)



The raft was about to enter Foul Rift, one of the most difficult spots on the River, when this photo was taken. The men at the sweeps are endeavoring to head the raft towards the Jersey side. (Courtesy of Mrs. Walter J. Hankins.)



Rafting crew. The captain is on the extreme left. (Courtesy of Mrs. Walter J. Hankins.)



Cable ferry at Masthope, Pa. It was held at an angle to the current which pushed it across. (Courtesy of Commercial Museum, Philadelphia.)



The George F. Barrett Sawmill at Camden about 1890. One of the many riverside mills to which rafters brought logs. The mill was located close to the water and near the present Philadelphia-Camden Bridge. (Courtesy of Howard R. Kemble.)



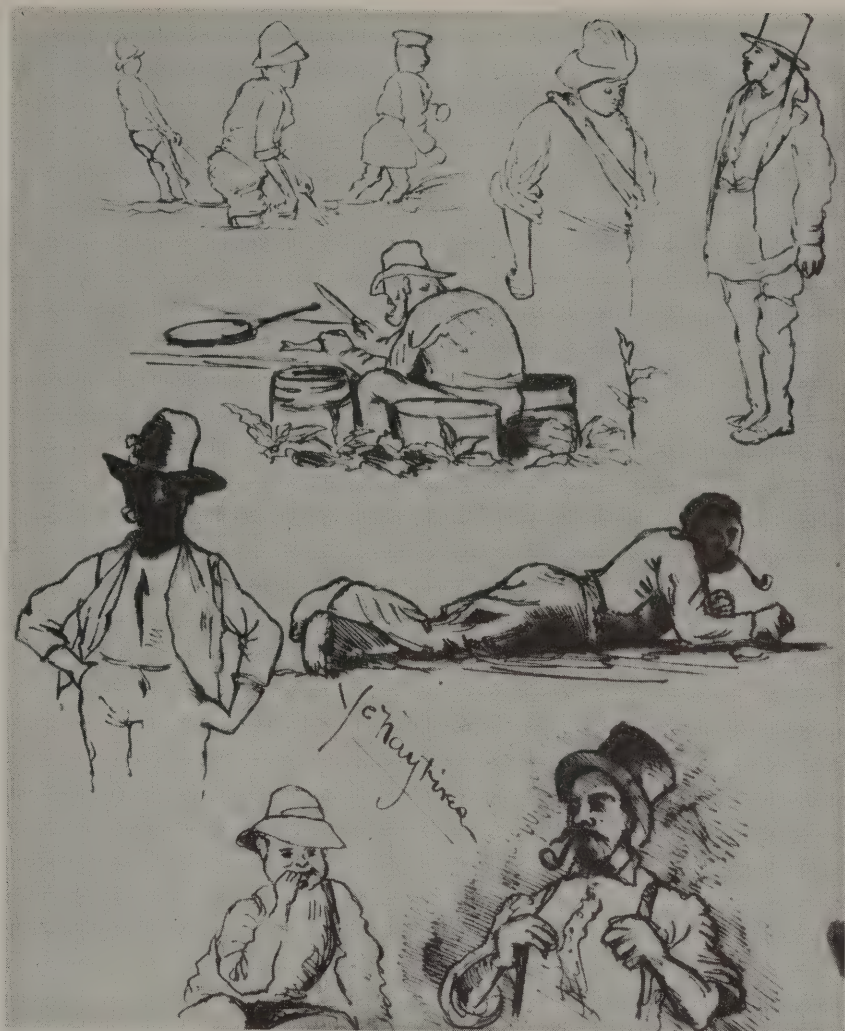
In a quiet sector, below the Narrows near Riegelsville, a riverman is picking cobblestones out of the river. They were taken by canal boat to Philadelphia for cobbling streets. (Painted by August Köllner. Courtesy of Historical Society of Pennsylvania.)



Joseph Pennell was nineteen when he sketched these oyster boats along the wharves of Philadelphia in 1879. (Courtesy of Historical Society of Pennsylvania.)



Fish House at Gloucester, apparently a favorite subject of the young artist, Joseph Pennell. (Courtesy of Historical Society of Pennsylvania.)



"Ye Naytives" as Pennell entitled sketches of watermen of one kind or another.
(Courtesy of Historical Society of Pennsylvania.)



Thomas Eakins was a close observer of river activities. These are shad fishermen at Gloucester, N. J., painted in 1881. (Courtesy of Philadelphia Museum of Art.)



Ships and sailboats on the Delaware, painted by Eakin, about 1874. (Courtesy of Philadelphia Museum of Art.)



One of Eakin's favorite subjects was rowing on the Schuylkill. The annual regattas of the Schuylkill rowing clubs or "Navy" began over a hundred years ago. Painted in 1872. (Courtesy of Philadelphia Museum of Art.)



Sailboats racing on the Delaware, painted by Eakins, about 1874. (Courtesy of Philadelphia Museum of Art.)



Iron-hulled *Volunteer*, built by Pusey & Jones, which successfully defended the *America's Cup* against the British yacht *Thistle* in 1887. (Courtesy of Library of Congress.)



Rail and reed bird shooting in the swampy areas along the river was a widely practiced river sport. A small boat known as a "ducker" was used for this purpose. Eakins has painted a busy day during the season of 1874. (Courtesy of Metropolitan Museum of Art.)



A fair weather picture of the Cohansey Light House at the entrance to the New Jersey river of the same name (1878). (Courtesy of Charles G. Dorman.)



Three-masted schooners were doing a large part of the coastal freighting of coal and lumber by the latter part of the 19th century. This is a typical schooner at a dock at Salem, N. J. (Courtesy of Salem County Historical Society.)



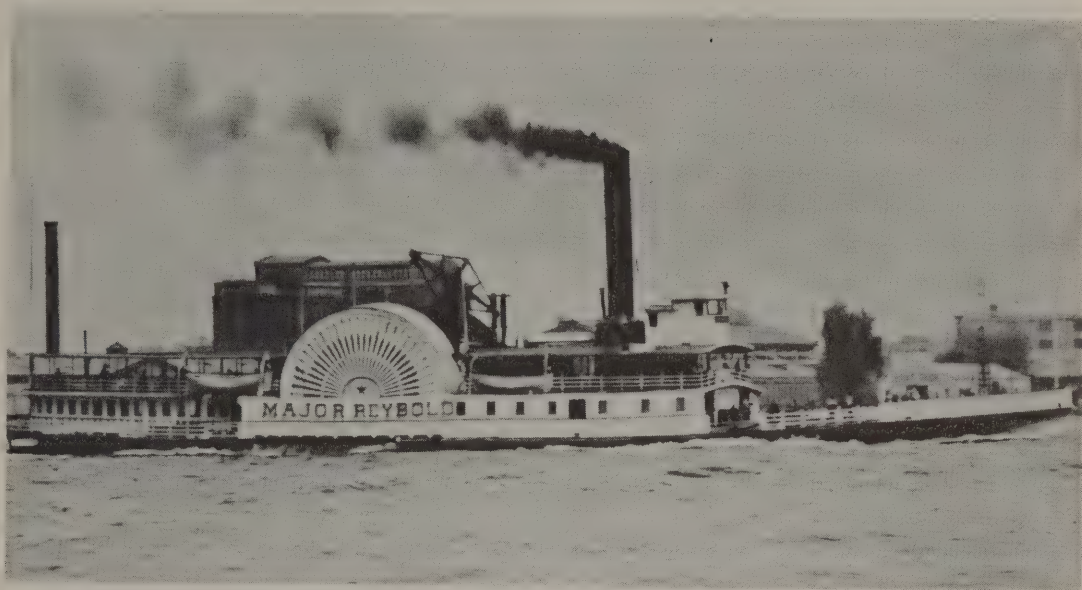
Cohansey Light House during the storm of October 23, 1878, surrounded by the wrecked *Anna Worrill*, *Ester*, and *Anna B. Russell*. (Courtesy of Charles G. Dorman.)



Many of these coastal schooners were built at small yards on creeks. The *Caroline Hall*, owned by J. W. Hall & Son, was built at Frederica, Delaware. This ship portrait was done with silk and velvet. (Courtesy of C. Porter Schutt.)



The 625-ton *Thomas Clyde* was built by Pusey & Jones in 1878 as a running mate for the *Major Reybold* on the line known officially as the Delaware City, Salem, and Philadelphia Steam Navigation Co. She was also used for excursions to Woodland Beach, Delaware. (Courtesy of Mariners' Museum, Newport News, Va.)



The 461-ton *Major Reybold* was built of iron by Harlan & Hollingsworth in 1853 for the sons of Major Philip Reybold of Delaware City. They wanted her primarily for the transportation of peaches. She became one of the best known steamboats on the lower part of the river running to Delaware City, New Castle, Salem, and Philadelphia. She continued in operation until 1907. (Courtesy of Elwin Eldredge.)



The 527-ton *John A. Warner* was built of iron by Harlan & Hollingsworth in 1856 for Jonathan Cone and others. She ran to Sea Breeze, N. J., after the construction of the Warner Hotel at that place in 1877. Later, renamed *Burlington*, she ran between Philadelphia and Trenton. She hit a rock and foundered in 1911. (Courtesy of N. R. Ewan.)



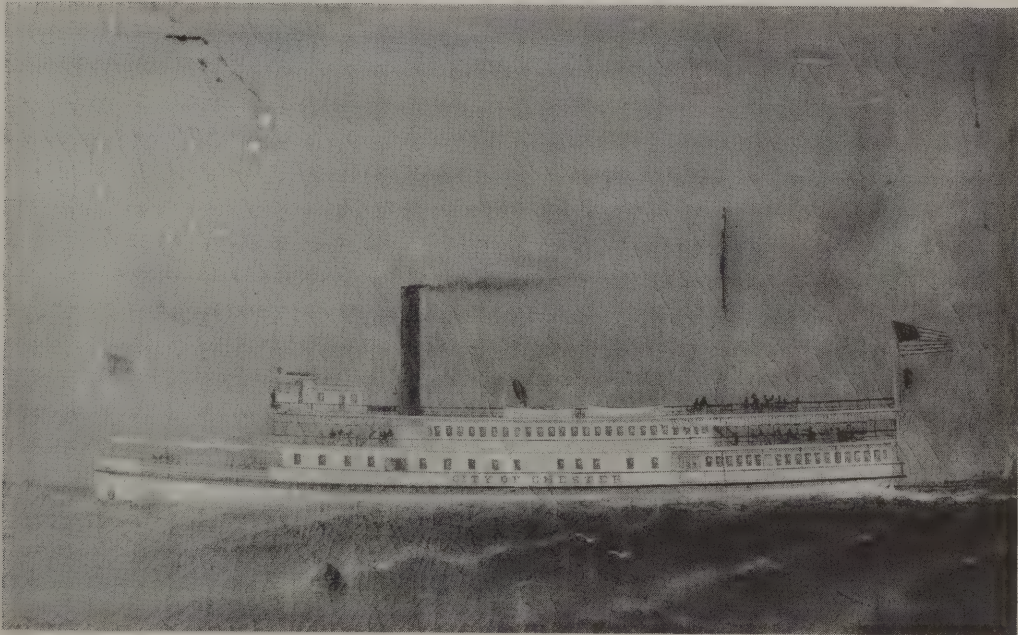
The 664-ton *Columbia* was built by Harlan & Hollingsworth in 1876 for the Delaware River Steamboat Co. She ran to Trenton in conjunction with the *John A. Warner* and *Republic* and was also used as an excursion boat running to various river parks. (Courtesy of Camden County Historical Society.)



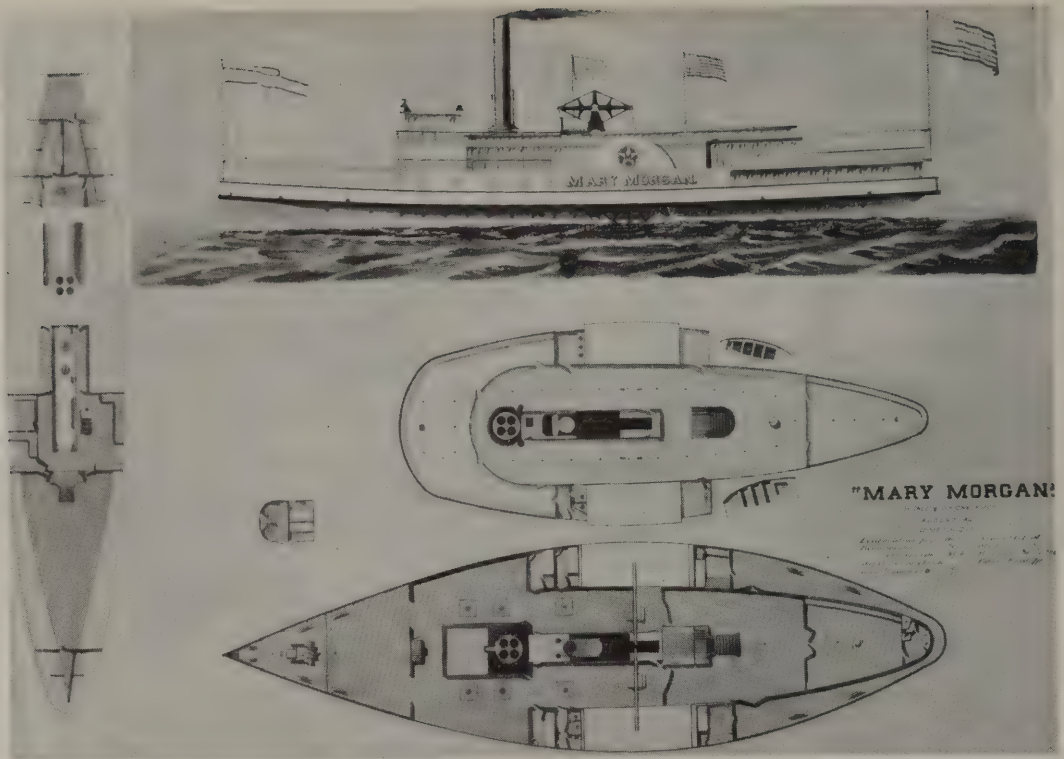
The *Cape May* was originally named *Republic* and was a 1285-ton iron steamboat built by Harlan & Hollingsworth for a syndicate headed by J. Cone. She ran to Trenton at first, later to Cape May, and, finally, from 1909 to 1924 when renamed *Dreamland*, ran from Baltimore to Chesapeake Beach. (Courtesy of Steamship Historical Society of America.)



The 407-ton *Brandywine* was built by Harlan & Hollingsworth in 1885 for Joseph S. Wilson, who with his son Horace and others formed the Wilmington Steamboat Company in 1882. They competed successfully with the *Samuel L. Felton* owned by the Philadelphia, Wilmington & Baltimore Railroad on the run between Philadelphia and Wilmington. (Courtesy of Steamship Historical Society of America.)



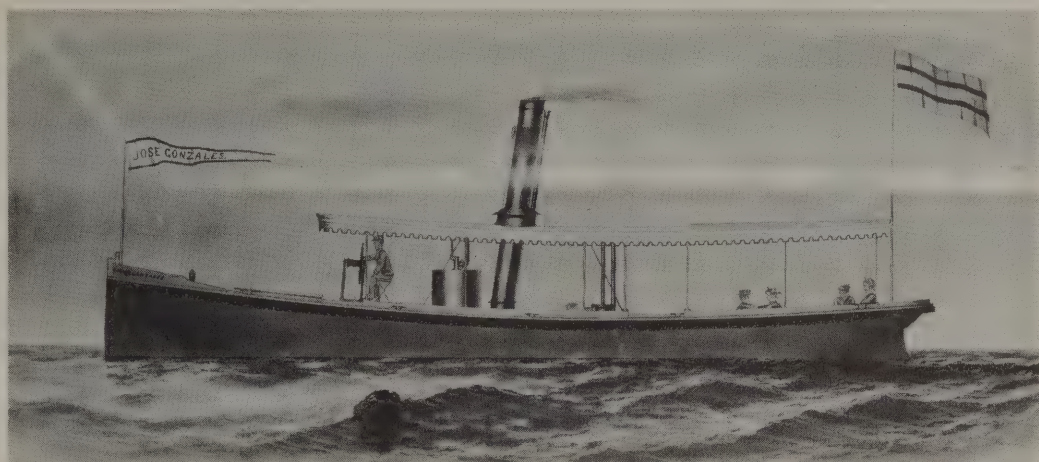
The 612-ton *City of Chester* was built of iron by Harlan & Hollingsworth. She was the third vessel owned by the line which became officially the Wilson Line in 1888, the year she was built. She came out ahead in several races with the *Republic*. (Courtesy of Wilson Line.)



The *Mary Morgan*, Harlan & Hollingsworth hull Number 168, was launched in 1877 and was one of several vessels built by that company for the Morgan Line. (Courtesy of Bethlehem Steel Corp.)



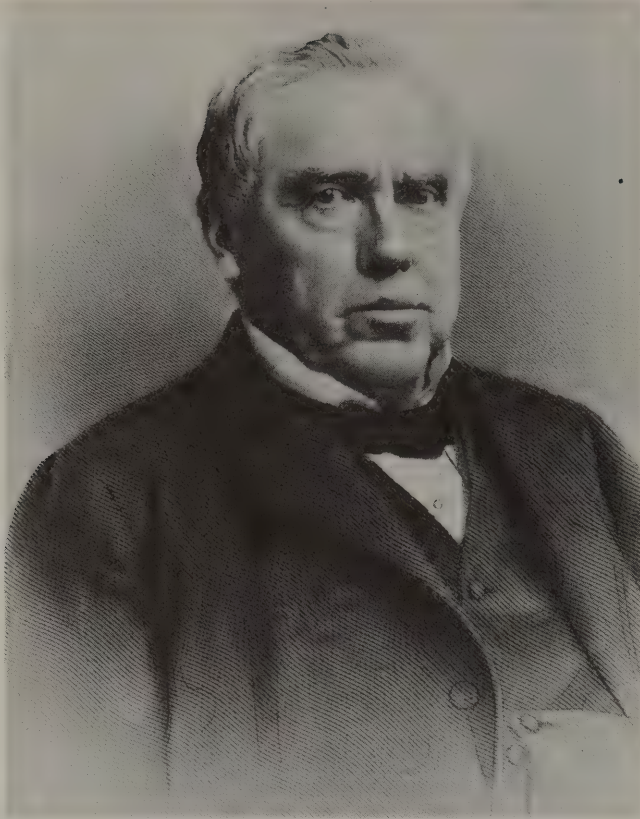
A work group at Harlan & Hollingsworth about 1886. (From "Semi-Centennial Memoir.")



Tug *José Gonzales*, a small river boat built by Harlan & Hollingsworth for export to Cuba. (Courtesy of Bethlehem Steel Corp.)



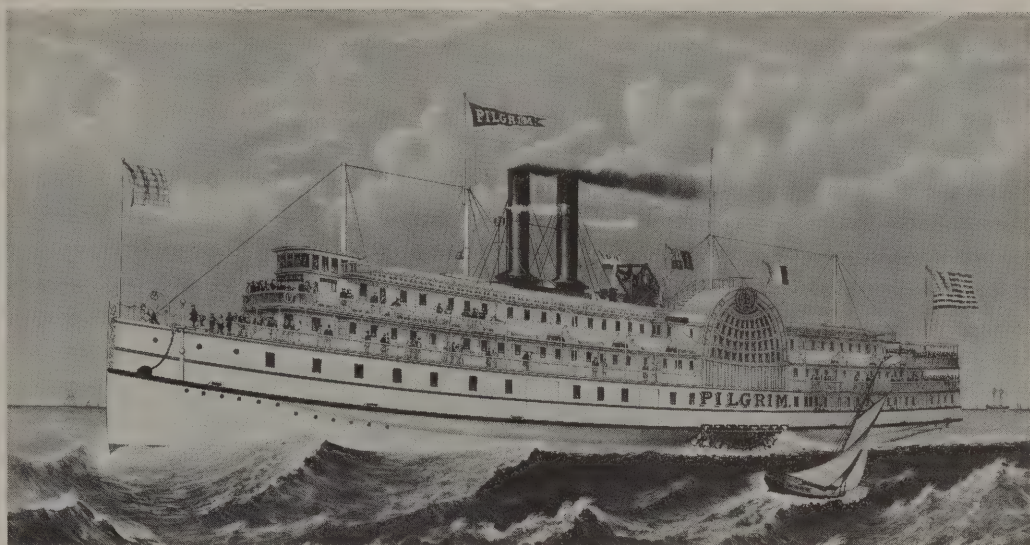
The 671-ton *Samuel M. Felton* was built of iron by Reany, Son & Archbold of Chester in 1866, for the P. W. & B. Railroad. She ran from Philadelphia to Wilmington and to Cape May. When leaving her pier in 1885, an explosion on her forward deck injured fourteen persons. Its cause was never discovered. She ran until 1914. (Courtesy of Delaware County Historical Society.)



John Roach, born in Ireland, learned shipbuilding in New York and then came to Chester where he acquired the yard of Reaney, Son, and Archbold. Under his direction a great many vessels were built and the yard and its owner became widely known. (Courtesy of Historical Society of Pennsylvania.)



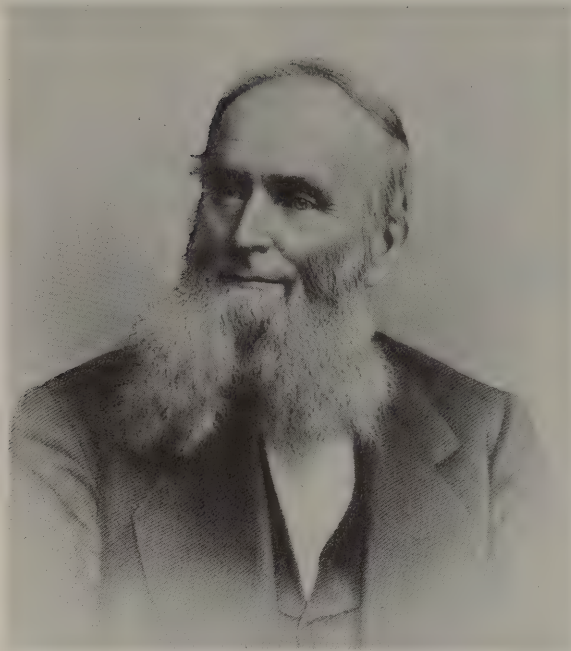
Roach's shipyard at Chester, Pa. (Courtesy of Delaware County Historical Society.)



The 3,483-ton *Pilgrim* was the first of a series of magnificent and fast steamboats built by Roach for the Fall River Line. Built in 1882 she was one of the first to have electric light and was considered fireproof and unsinkable, having iron construction and a double bottom. Her engine was made by the Morgan Iron Works, N. Y., and gave her a speed of 20 m.p.h. (Courtesy of Library of Congress.)



Launch of steamboat *Tinicum* at Roach's shipyard. (Courtesy of Delaware County Historical Society.)



William Cramp started his shipyard at Kensington in 1830. There were fourteen shipyards in the vicinity of Philadelphia at that time and his was the only one surviving in 1900. Upon his death in 1879, his son Charles succeeded him and continued the successful management of the business. (From Scharf's "History of Philadelphia.")



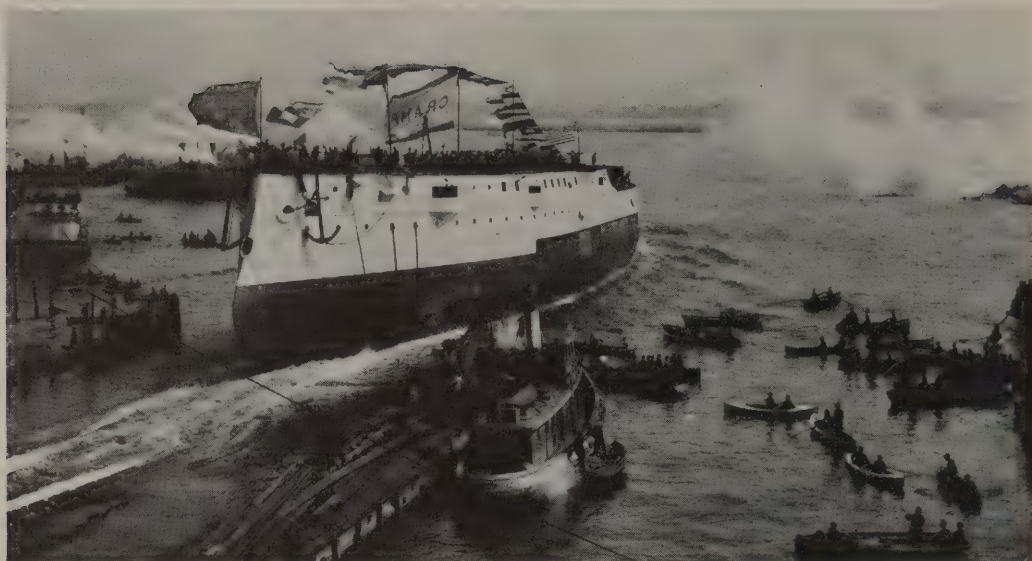
Cramp's shipyard just before the launching of a cruiser. This was one of the warships built by Cramp toward the end of the 19th century, after the Government had decided to build up the Navy. (Courtesy of Augustus H. Able, 3rd.)



Cruiser after launching. (Courtesy of Augustus H. Able, 3rd.)



Just before the launching of the *Iowa* at Cramp's. (Courtesy of Augustus H. Able, 3rd.)



Just after the launching of the *Iowa* 1896. She was one of the biggest ships taking part in the Battle of Santiago. (Courtesy of Augustus H. Able, 3rd.)



Abbott's shipyard at Milford, Delaware, was fifteen miles up the narrow and winding Mispillion River. It was one of three shipyards active at this inland port in the latter part of the 19th century. The vessel on the stocks is the schooner *George May*. (Courtesy of Lieut. Cmdr. W. J. Lewis Parker, U. S. C. G.)



E. C. Moore Company shipyard at the foot of Fourth Street, Wilmington, about 1900. This yard was started by Enoch Moore in 1833 and was one of the first in the city. (Courtesy of Historical Society of Delaware.)



Schooner *George May* after being launched in 1900 at Abbott's shipyard, Milford, Delaware. (Courtesy of Lieut. Cmdr. W. J. Lewis Parker, U. S. C. G.)



The *Dorothy Belle* was built about 1897 for Capt. John Sharp by a shipbuilder named Russell who had his yard on the Maurice River, N. J., near the present location of the Delaware Bay Shipbuilding Co. This vessel departed on her maiden voyage with a cargo of bricks and was never heard from again. (Photograph by Graham L. Schofield.)



The town of Smyrna on the Smyrna River, Delaware, prided itself on being a port. It shipped out peaches and phosphate. J. E. Tygert & Co. owned these two steamboats which, beginning in 1875, took produce and passengers to Philadelphia. (From "Encyclopedia of Delaware.")



The *J. V. Craven* ran between Philadelphia and Salem, New Jersey. (Courtesy of Salem County Historical Society.)



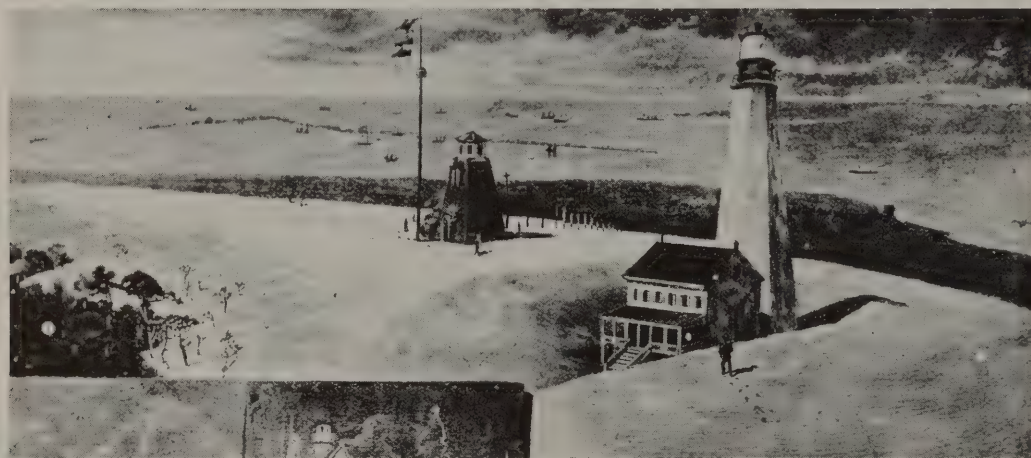
Combination passenger and freight steamboat which ran between Philadelphia and Milford, Delaware. (Courtesy of Steamship Historical Society of America.)



Another river steamboat. It was built in 1890 and ran between Philadelphia and Frederica, Delaware. (Courtesy of Mary Emily Miller.)



The "Iron Pier" at Lewes was built by the Government over a period of years starting about 1876. Its supports were made of "Mallory" iron imported from Sheffield, England, and were screwed into the bay bottom. Note the piles of wood fuel for the steamboats. (Courtesy of Harold W. T. Purnell.)



Henlopen Light and the Maritime Exchange signal station. The wind piled sand around the lighthouse while the ocean was washing the beach away at the foot of the sandhill. Lewes was probably the most important port of call on the Atlantic coast, being midway between New England and the Gulf. Captains called for letters and telegraphic orders. In 1889 it is estimated an average of fifty ships were anchored around the breakwater every day. (Courtesy of Harold W. T. Purnell.)

X

Turn of the Century

(1890-1910)

AT THE turn of the century muscle-building was popular. On the Delaware's upper reaches it was indicated by enthusiasm for canoeing and, lower down, by the necessity for installing bicycle racks aboard steamboats. A kind of muscular outlook was also characteristic. It came from the realization of the bigness of the country and from the conviction that it was America's destiny to become a great power. The war with Spain fitted into this scheme of things. That encounter was brief and glorious.

The upper Delaware had become, primarily, a recreational area. Rafting days were nearly over. Canals were still used as coal-carriers, but they were declining in importance. The river above Trenton made a superb summer resort for artists, campers, and canoeists. In summer, life on the whole length of the river quickened. The business of the regular steamboat lines increased and excursion steamers ran busily to river parks and to sea-shore resorts.

In winter, and sometimes as early as the autumnal equinox, the river's aspect changed. It became less friendly though no less alluring. Severe storms made it a hazardous highway except for professional pilots and sailors and sometimes even for them. In midwinter it was still possible for Philadelphians to skate to New Castle and return by train but the more efficient ice-breakers were interfering with that sport. Occasionally boats got caught in the ice or were damaged by ice floes. Bordentown observers from the vantage point of their high bluff continued to watch the spring freshets sweep down great masses of ice, bearing along with them pieces of rafts, barns, and sometimes even covered bridges. Ice harbors at Marcus Hook, New Castle, and Lewes provided a safe refuge for small craft. But it was still a good idea to place wooden sheathing around a vessel at the water line when going up river if ice floes were present.

A new breakwater was completed at Cape Henlopen in 1897. It was two and a quarter miles north of the old one. The Government decided it was needed after a series of severe storms—the famous “blizzard of 1888” was

one of the worst—demonstrated its need. Many vessels had been wrecked when a change of wind blew them against the old breakwater.

On the whole, this was a busy time for shipbuilders. It was also a time of unification in this as in other businesses. In Wilmington the railroad car and wooden shipbuilding plant of Jackson & Sharp became, in 1901, a subsidiary of the American Car and Foundry Co. A year later Harlan & Hollingsworth became a unit in the huge United States Shipbuilding Corporation. Steelmakers were seeking control of the prime users of their product. In another four years the financial problems of this too-hastily built combination of shipyards gave Charles Schwab the opportunity to bring them into his Bethlehem Steel Corporation. After that Harlan & Hollingsworth became known as the Harlan Plant of the Bethlehem Steel Corporation.

Since before the Spanish-American War, the Navy had relied upon Delaware shipbuilders to help build the "great White Fleet." Roach's, but more especially, Cramp's shipyard did most of this large-scale construction. Charles H. Cramp worked out with Secretary Whitney a scheme providing for penalties and rewards according to speed of construction and quality of work. Under this arrangement his company earned rewards totaling nearly two million dollars for the construction of eleven warships. A new shipyard was built at Camden in 1900 by H. G. Morse, backed by Pittsburgh steelmakers. It was intended, from the beginning, to have the capacity to build battleships. Morse originally planned to locate his yard near New York, hence it was named the "New York Shipbuilding Company."



Canoeists starting downstream from a covered bridge at Deposit, N. Y., about 1900. The town got its name because logs were deposited here before being made into rafts. (Courtesy of Commercial Museum, Philadelphia.)



High log bridge, about 1900. (Courtesy of Commercial Museum, Philadelphia.)



The Kittatinny Hotel afforded its patrons a magnificent view of the Water Gap. The hotel was over a hundred years old when it burned in 1931. This photograph was taken about 1900. (Courtesy of Library of Congress.)



Canoeists embarking below Cochection Falls, May, 1910. (Courtesy of Mrs. George Emlen.)



S. Mason, Jr. shooting Cochection Falls, May, 1910. (Courtesy of Mrs. George Emlen.)



Canoe clubs at Trenton, 1889. (Courtesy of Trenton Free Public Library.)



This particular club was hard hit by a spring freshet. Two of its members managed to keep their feet dry. (Courtesy of Trenton Free Public Library.)

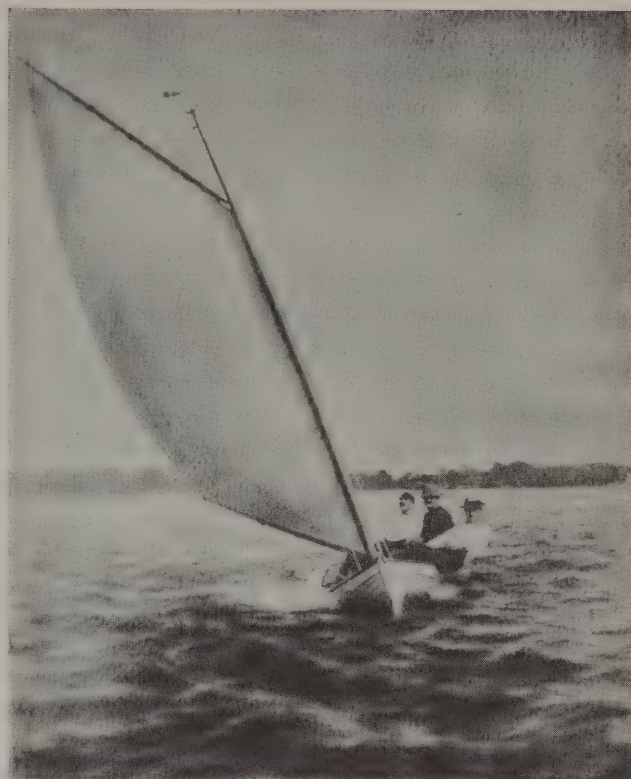


A tall yachtsman races a small sailing canoe. (Courtesy of Trenton Free Public Library.)



Sailboat racing off the Corinthian Yacht Club at Essington, about 1907. This club was organized in 1892 and fostered several classes of racing boats such as one-design "Knockabouts," "Larks" (familiarily known as "Barn Doors"), and "Raceabouts." (Courtesy of Delaware County Historical Society.)

This particular "tuckup," the *Thomas M. Seeds*, was built by Wignal in 1872. Photographed about 1880 with Walter Gilbert at the tiller. It is one of very few of this once popular type boat still in existence. It is owned by M. V. Brewington who also owns this photograph.



Steamboat *Queen Anne* at the Queen Anne pier, Lewes. In 1898 a railroad connection was made with Love Point, Maryland, whence there was a boat connection with Baltimore. (Courtesy of Harold W. T. Purnell.)



Rehoboth beach about 1905. Since this picture was taken the ocean has moved in and the roadway has disappeared. (Courtesy of Harold W. T. Purnell.)



Rehoboth bathers about 1890. (Courtesy of Historical Society of Delaware.)



A heavy-laden tow on the Delaware & Hudson Canal near Lackawaxen, Pa. By this means Pennsylvania coal was brought to the Hudson River. (Courtesy of Commercial Museum, Philadelphia.)



In 1849 John A. Roebling constructed this aquaduct, suspended by wire cables, as a means of carrying the Delaware & Hudson Canal over the Delaware River at Lackawaxen. He also erected suspension bridges at Niagara Falls and Brooklyn. (Courtesy of Mrs. Louise K. Flora.)



Canal boat passing over the aquaduct from Lackawaxen, Pa., to Minisink Ford, N. Y. The last boat went through in 1898 and thereafter Carbondale coal went to Weehawken via the Erie Railroad. (Courtesy of Mrs. Louise K. Flora.)

Overflow from the Delaware Division Canal to the river at Point Pleasant, above New Hope. Heavy and light canal boats in the background. (Courtesy of Commercial Museum, Philadelphia.)





Port Delaware, near Phillipsburg, N. J., where coal barges from the Lehigh crossed the Delaware and entered the Morris Canal on their way across New Jersey to Newark. (Courtesy of William Augustine.)



Canal close to the river above Morrisville, Pa., at which place it left the river and cut across to Bristol. (Courtesy of Commercial Museum, Philadelphia.)



Lock at the entrance to the Delaware & Raritan Canal at Bordentown. Trenton in the distance, up river. (Courtesy of Commercial Museum, Philadelphia.)



Crosswicks Creek at Bordentown. This would have been the entrance for a proposed ship canal across New Jersey. (Courtesy of Commercial Museum, Philadelphia.)



Steam-propelled canal boat *Vesper* on the Delaware & Raritan Canal in 1900. (Courtesy of Trenton Free Public Library.)



This photograph of the Camden ferry landing was probably taken about 1900. The horse-car and trolley sitting cheek-by-jowl and the indication that Smith's Island was being dismantled support this supposition. That famous bathing and beer garden resort, also known as "Ridgway Park," was dug up and deposited at League Island and on the Jersey flats during the years 1891 to 1900. (Courtesy of Camden County Historical Society.)



Among the less well-remembered industries at the turn of the century was the manufacture of dyes. The Sharpless dyewood mills at Chester got their logwood, fustic, and quercitron bark from the Caribbean by schooner. (Courtesy of Delaware County Historical Society.)



Dolly Spanker ferry across the Chesapeake & Delaware Canal at Delaware City. (Courtesy of Commercial Museum, Philadelphia.)



View from Ericsson Line steamboat as it entered the Chesapeake & Delaware Canal at Delaware City, about 1910. (From Vollandigham's "Delaware and the Eastern Shore.")



Yacht *Roxana* coming out of the lock at the entrance to the C. & D. Canal, about 1910. (From Vollandigham's "Delaware and the Eastern Shore.")



Looking down Packet Alley, New Castle, about 1900. (Courtesy of Mrs. Horace L. Deakyne.)



Ship-chandler store at the corner of Packet Alley and the Strand, New Castle, about 1890. (Courtesy of Mrs. Horace L. Deakyne.)



Shad skiffs and fishermen at New Castle, about 1905. Note cordwood stacked on wharf and granary built in 1825, which stood until about 1912. (Courtesy of Mrs. Horace L. Deakyne.)



Drying shad nets at New Castle, about 1900. Tasker Iron Works in the background. (Courtesy of Mrs. Horace L. Deakyne.)



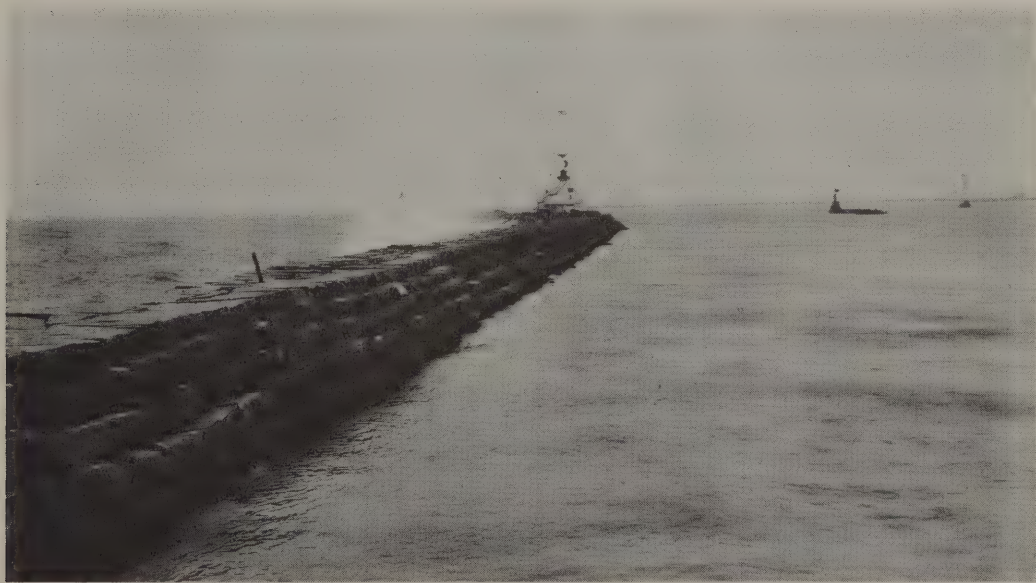
Sturgeon skiffs with sails furled at Bay Side, N. J., about 1905. (Courtesy of James M. Landis.)



Menhaden boats tied up at Queen Anne pier, Lewes. (Courtesy of Harold W. T. Purnell.)



Lewes harbor of refuge, seen from the lighthouse on the eastern end of the old breakwater. The blue granite stone for the breakwater was quarried from along the Brandywine. (Courtesy of Commercial Museum, Philadelphia.)



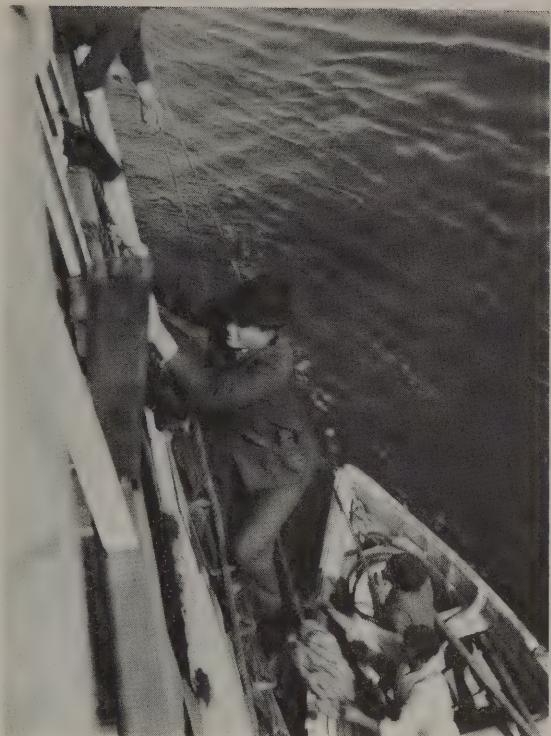
Looking eastward, after the gap in the old breakwater had been filled, about 1898. (Courtesy of Commercial Museum, Philadelphia.)



Gapway wall, looking westward at the wreck of the schooner *William R. Steelman*.
(Courtesy of Commercial Museum, Philadelphia.)



When the pilots adopted steam they kept the schooners *J. Henry Edmunds* and *W. W. Ker* in service. The *Edmunds* was used until she ran aground in a fog in 1928. (Courtesy of Delaware State Archives.)



Pilot coming aboard. Apprentices' training included the duty of rowing pilots out to incoming vessels. (Courtesy of Commercial Museum, Philadelphia.)



The Pilots Association for the Bay and River Delaware was formed in 1896. A year later the steamboat *Philadelphia* was commissioned and five schooner-rigged pilot boats were retired. The original *Philadelphia* has been succeeded by two others bearing the same name. (Courtesy of Harold W. T. Purnell.)



Spring freshets started the ice moving high up the river. This photograph was taken at Fish's Eddy on the East Branch and shows a bridge washed out and a barn and a raft deposited upon the railroad embankment, about 1901. (Courtesy of Ralph E. Wright.)



River steamboat *Twilight* caught in the ice near Trenton. She was 420 tons and was built by Harlan & Hollingsworth in 1868. (Courtesy of Trenton Free Public Library.)



The river filled with ice, near Burlington. There were times in midwinter when even the bay would freeze over. (Courtesy of Burlington County Historical Society.)



Ice jam at Gloucester Beach, photographed December 29, 1892. (Courtesy of William Augustine.)



Thompson's Hotel at Gloucester, photographed December 8, 1895. Thompson's was famous for its "planked shad" dinners and as a place frequented by Walt Whitman. (Courtesy of William Augustine.)



City Ice Boat Number 3 was built in 1874 by Wood, Dialogue & Co., of Camden and was more powerful than the two older ones. She was sunk in 1905 when the ice pack at the breakwater forced her upon a submerged wreck. (Courtesy of Mariners' Museum.)



The Camden ferry often had to be her own ice-breaker. This winter scene on the river was painted by George E. Essig. (Courtesy of Mariners' Museum.)



New Castle ice harbor—full to capacity. Wooden vessels coming up the river through ice were usually sheathed at the waterline with "sap" pine before leaving the ice harbor at Lewes. (Courtesy of Mrs. Horace L. Deakyne.)



Pilot boat *E. W. Tunnell* blown ashore in 1896. She was pulled off with no more damage than torn copper sheathing. She once rode out a hurricane which kept her at sea eleven days and nights. (Courtesy of Harold W. T. Purnell.)



A schooner in distress on Excelsior bar, opposite Chester, about 1910. (Courtesy of Delaware County Historical Society.)



Many shipyards, big and small, were kept busy with repair work and overhaul, as well as with new work. Barton's boatyard at Marcus Hook, about 1910, is perhaps, typical of small yards up and down the river. Schooner *Juanita* and motorboat *Angler* on the ways. (Courtesy of Delaware County Historical Society.)



Boatyard-owner Barton and schooner *Rosa Lambert*. (Courtesy of Delaware County Historical Society.)



Coastal schooners were still in demand. This handsome one, the *Calhoun E. Ross*, was built in 1908, by Abbott's at Milford. (Courtesy of Lieut. Cmdr. W. J. Lewis Parker, U. S. C. G.)



The *Albert R. Paul*, built in 1917 and one of the last schooners made by Abbott's at Milford. (Courtesy of Maryland Historical Society.)



Harlan & Hollingsworth built the 745-ton steam yacht *Nourmahal* for William Astor in 1884. She was famous for her luxurious fittings and seaworthy qualities. (Courtesy of Mariners' Museum.)



The *Niagara* was also built by Harlan & Hollingsworth and was nearly twice the tonnage but only about ten feet longer than the *Nourmahal*. She was built for Howard Gould in 1898 and was the biggest yacht ever built by Harlan & Hollingsworth. (Courtesy of Mariners' Museum.)



The double-turreted monitor *Amphitrite* was a long time building. She was originally built at the Philadelphia Navy Yard as the *Tonawanda* in 1864. Harlan & Hollingsworth rebuilt her from 1874 to 1889 after which the Navy worked on her until 1895. The delay was due to lack of appropriations and changes in plans. She took part in the Spanish-American War. (Courtesy of Mariners' Museum.)



View of a newly-launched vessel at Roach's shipyard, Chester, and of an outgoing steamer. (Courtesy of Delaware County Historical Society.)



Cramp's built the *St. Louis* for the Inman & International Line in 1894. President Cleveland attended the launching and made a speech expressing the hope that this was the beginning of a restored American merchant marine. (Courtesy of Mariners' Museum.)



When Cramp built the battleship *Retvizan* for Russia in 1900 she was the largest warship ever built in this country. (Courtesy of Library of Congress.)



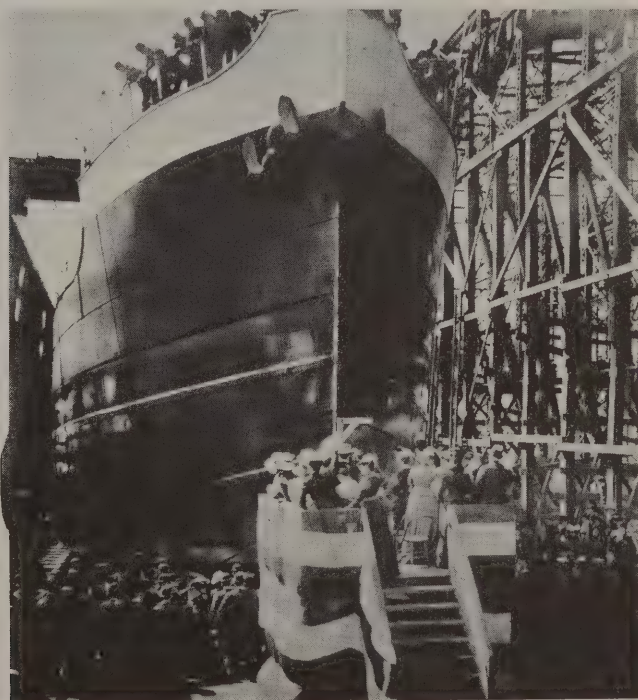
The *U. S. S. Brooklyn*, built by Cramp's in 1895, was Admiral Schley's flagship during the Battle of Santiago. (Courtesy of Library of Congress.)



The *U. S. S. Massachusetts* also was built by Cramp's and also participated in the Battle of Santiago. (Courtesy of Library of Congress.)



Spanish gunboat *Alvarado*, captured at Santiago, passing through canal at Trenton on April 5, 1899. She was Clyde-built, 100 tons, and was accompanied by a sister-ship named the *Sandoval*. At this time she was painted regulation U. S. colors—white hull and light yellow upper works. (Courtesy of Trenton Free Public Library.)



Launching of steamship *M. S. Dollar* on May 4, 1901. First vessel built at the New York Shipbuilding Company yard in Camden. (Courtesy of Camden County Historical Society.)



The cruiser *Olympia* was Dewey's flagship at the Battle of Manila. That battle commenced at 5:40 on the morning of May 1st, 1898 when, having come within effective range of the Spanish warships, Admiral Dewey turned to the *Olympia's* Captain and said, "You may fire when you are ready, Gridley." She was built in 1894 at the Union Iron works, San Francisco, and is now preserved at the Philadelphia Navy Yard. (Official United States Navy Photograph.)

XI

The American Clyde

(1910-1930)

IN THE years just before World War I burst upon an unsuspecting world, the disadvantages of the Delaware for shipping seemed to be magnified. The port of Philadelphia, nearly a hundred miles from the ocean, was losing ground to other ports and especially to nearby New York. In addition to the distance, the narrow shifting channel and the uncertainties of weather were important factors, since time was a major consideration in chartering. When fog or other weather conditions made navigation difficult, the pilot would frequently drop anchor and wait for the next tide. It was not unusual to see half a dozen ships anchored between Philadelphia and Reedy Island. Vessels often took two tides to clear the Capes and, occasionally, three.

River steamboating dwindled. The Wilmington Steamboat Company, now known as the Wilson Line, was the principal survivor. Its boats now ran from Philadelphia to Trenton as well as to Wilmington. In 1930 it bought the Bush Line, whose principal business was the transport of lumber and coal. In addition it acquired control of the Wilmington-Penns Grove Ferry which, in the coming automobile age, was to become a bonanza.

River traffic was also affected by the further decline in the use of canals. Railroads paralleled the river for most of its length and also provided convenient connections with the Hudson and the Chesapeake. Rail had become the preferred means for hauling Pennsylvania's coal and steel. The Chesapeake and Delaware Canal was still in business but its three narrow locks and ten foot depth were outmoded. A movement was started to have it widened and deepened to tidewater level. War needs gave impetus to this movement and resulted in its acquisition by the Government in 1919.

The war in Europe seemed remote to Americans when it started. However, as early as the fall of 1915, lack of shipping was making it difficult for western farmers to market their bumper crops. To meet this emergency the Government set up a Shipping Board. It achieved very little until Edward Hurley became its chairman and the president of its subsidiary, the Emergency Shipbuilding Corporation. By that time the United States was itself involved in the war and private shipyards as well as Navy yards were

occupied to capacity. The Shipping Board commandeered or purchased all American and foreign shipping it could lay hands on. But this was not enough. In order to support our Allies and to transport and supply an expeditionary force, more ships were needed. New yards were created and new ships were built of steel and wood and even concrete.

The world's largest shipyard was constructed by a new company, the American International Shipbuilding Corporation, at Hog Island across the Schuylkill from League Island. That site was chosen because it was within reach of labor, electric power, fresh water, and railroad trunk lines. Also it was far enough from the ocean to be safe from bombardment. Within a year this swampy area was transformed into a shipyard where 34,000 men could, at one time, build 50 ships on ways and complete 28 more at fitting-out docks. Since nearby mills were already occupied to capacity, plates and frames were brought from mills and bridge-fabricating plants inland, some as far west as Kansas City or as far north as Montreal. Three hundred freight cars a day brought these materials to huge storage yards behind the ways.

A second smaller yard was constructed at Bristol, Pa., by the Merchant Shipbuilding Corporation, whose chief stockholder was Averill Harriman.

The emergency shipbuilding program was just hitting its stride when the armistice was signed. Many troop-carrier contracts were cancelled but cargo carriers were completed, 1180 being launched in 1919 as against a total of only 533 in 1918. The Government was endeavoring to cushion unemployment and was hoping to revive the merchant marine. A recession in 1921 was not avoided and the merchant marine was not revived.

The nineteen-twenties were, on the whole, a time of great industrial activity. The war hastened the substitution of passenger automobiles and trucks for slower and less convenient modes of travel and transport. Coastal and river steamboat lines which had survived the competition of railroads were now faced with this new, more difficult, competition. New roads and bridges were built for the benefit of the automobile. The Philadelphia-Camden Bridge, for example, was completed in 1926. An auto-ferry service between New Castle and Pennsville began in 1925 and soon had all the business it could handle. Shipping was not entirely neglected. The city of Wilmington built a marine terminal at the mouth of the Christina in 1923 and the federal government deepened and widened the Chesapeake & Delaware Canal.



In 1914 the old iron Brandywine Shoal Lighthouse, the first light to greet incoming ships after they pass the Capes, got a more substantial replacement. (Courtesy of National Archives.)



The Wilson Line's trim steel *City of Wilmington*, added to their fleet in 1910, making a landing at Chester. (Courtesy of Delaware County Historical Society.)



Wilson Line pier at Philadelphia, viewed from under the Delaware Avenue elevated.
(Courtesy of Commercial Museum, Philadelphia.)



In 1912 the six-masted schooner *W. L. Douglas*, built at Quincy, Mass., was converted into a tanker and renamed *Delaware Sun*. She had a capacity of 5,424 deadweight tons; 35,885 barrels of crude oil. On voyages to the Marcus Hook refinery she was usually towed by a sea tug at 5 m.p.h., but, on occasion, could sail independently. (Courtesy of Sun Oil Company.)



Ericsson Line's steamboat *Penn* leaving the canal at Delaware City. In 1900 the line began running in the daytime as well as at night. (Courtesy of Commercial Museum, Philadelphia.)



During the tomato season barge-loads, such as this, passed through the C. & D. Canal. (Courtesy of Commercial Museum, Philadelphia.)



Lumber schooners were frequent users of the canal. (Courtesy of Commercial Museum.)



A barge-load of artillery being towed through the canal. The canal's wartime usefulness influenced the government to take it over in 1919. (Courtesy of Commercial Museum, Philadelphia.)



William Cramp & Sons Ship and Engine Building Company in 1917. (Courtesy of Library of Congress.)



Hog Island under construction, as seen from central fire station. (Courtesy of National Archives.)



After the completion of Hog Island's fifty ways. (Courtesy of Commercial Museum, Philadelphia.)



Wet basin at Hog Island. (Courtesy of Library of Congress.)



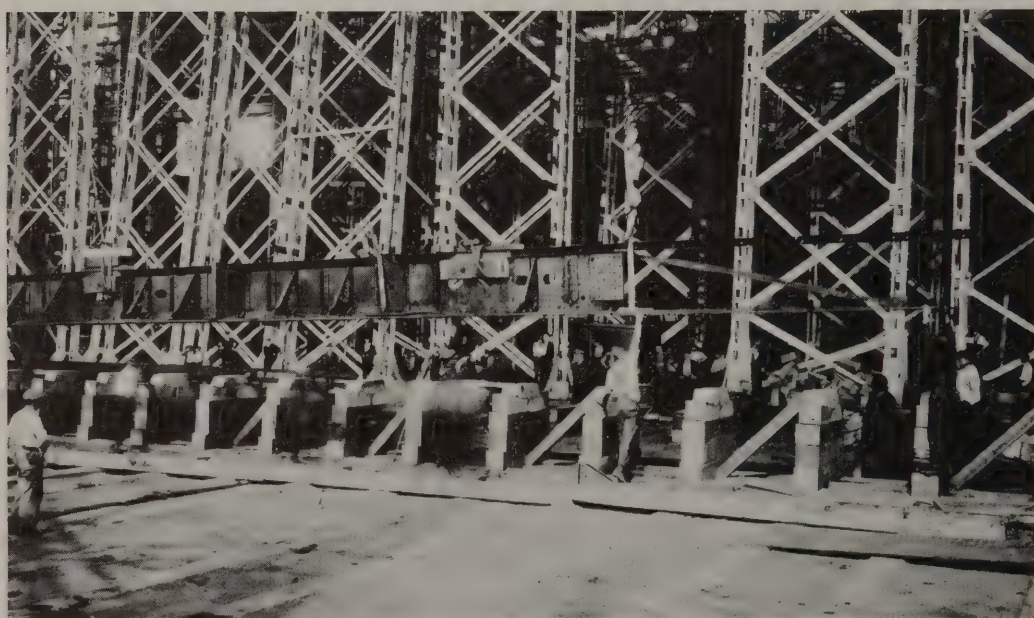
Wooden sub-chasers built at Jackson and Sharp plant of American Car and Foundry Company, Wilmington, 1917. (Courtesy of Delaware State Archives.)



British ship *Eagle Point* in dry dock at Cramps. (Courtesy of Library of Congress.)



Riveter at Hog Island Shipyard helping to build the "bridge of ships." (Courtesy of National Archives.)



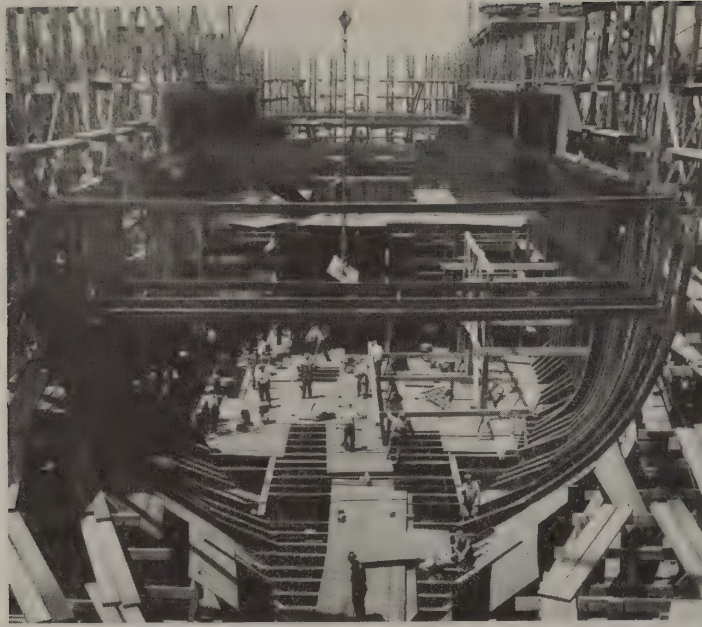
Laying the keel of battle cruiser *U. S. S. Saratoga* at New York Shipbuilding Corporation in 1920. (Courtesy of Library of Congress.)



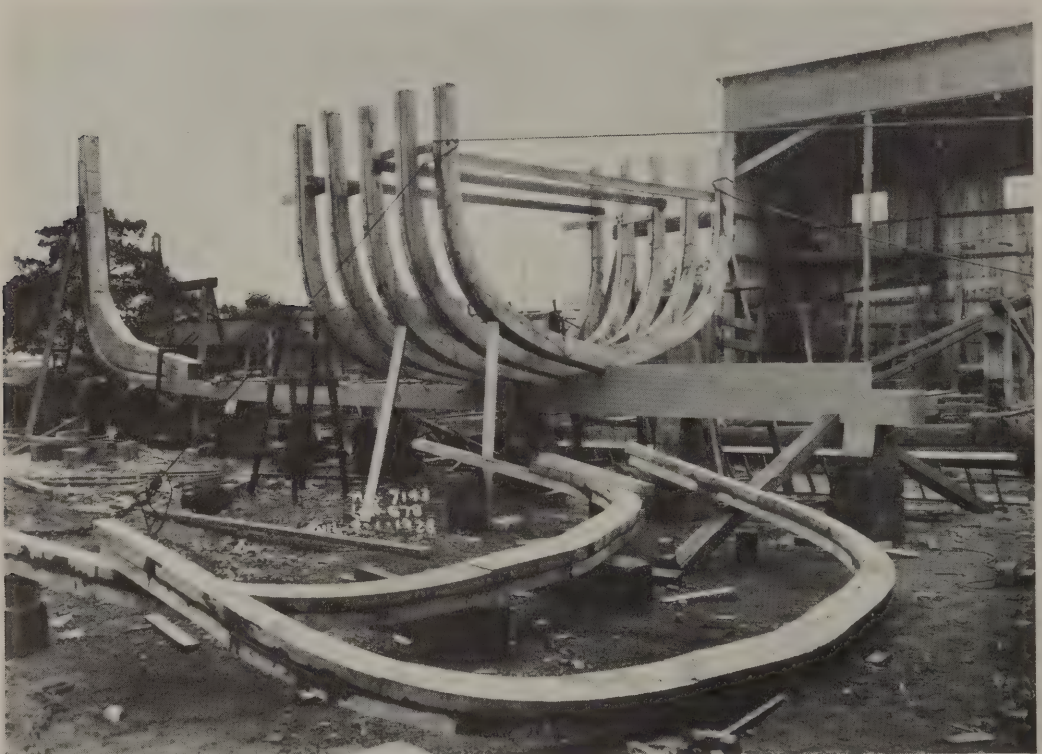
The *Quistconck*, first ship launched at Hog Island. Her name was the Indian equivalent of "Hog Island" and was chosen by Mrs. Wilson who also did the christening. President Wilson is seen standing by. (Courtesy of National Archives.)



The U. S. S. *Saratoga* after completion and commissioning as an aircraft carrier in 1927. (Courtesy of William Augustine.)



Keel and ribs of steel ship under construction at Hog Island. (Courtesy of National Archives.)

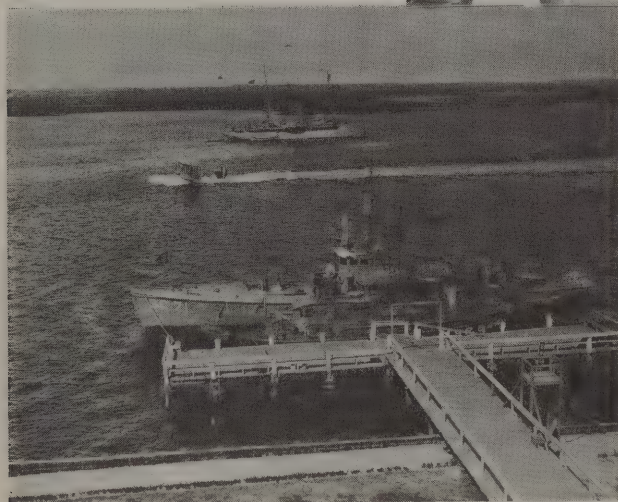


Keel and ribs of wooden tug under construction at Jackson and Sharp. (Courtesy of Delaware State Archives.)



In 1917 Cape May suddenly found it had become a Naval Air Station and Training Center. Here recruits are issued seabags and cots. (Official United States Navy Photograph.)

Recruits relax while waiting to be assigned barracks. (Official United States Navy Photograph.)



Seaplane taking off at Sewels Point, Cape May, 1918. (Official United States Navy Photograph.)



Hammerhead crane lowering boiler into a nearly finished cargo vessel at New York Shipbuilding Corporation. (Courtesy of Library of Congress.)



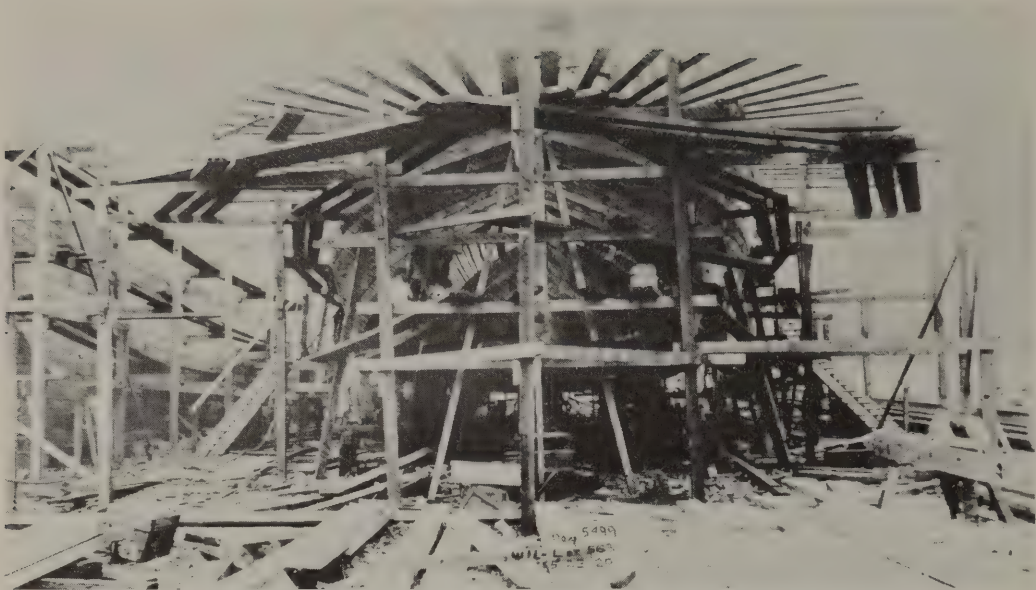
At the end of a shift, shipyard workers get their picture taken. (Courtesy of Commercial Museum, Philadelphia.)



One wartime experimental ship put to postwar use. Concrete ship used as a breakwater in an effort to anchor the beach inside of Cape May. (Courtesy of Library of Congress.)



Postwar wooden barge construction at Jackson & Sharp plant of the American Car and Foundry Company, Wilmington. (Courtesy of Delaware State Archives.)



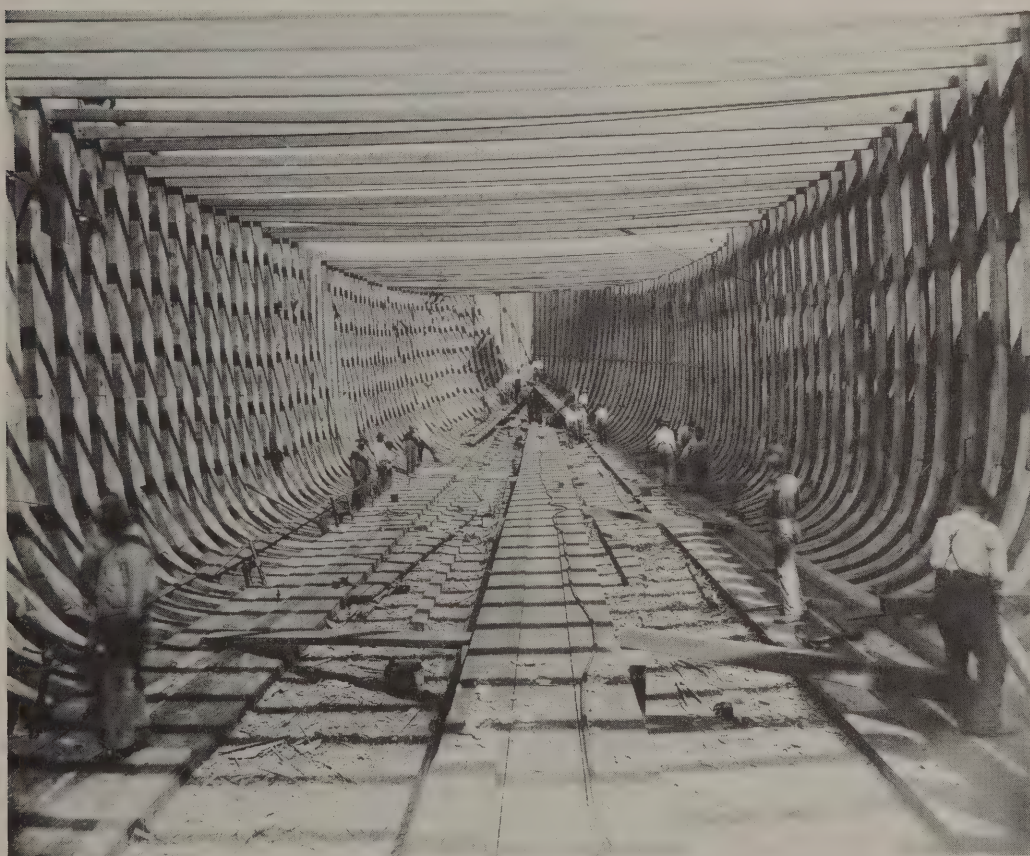
Ferryboat construction at Jackson & Sharp. (Courtesy of Delaware State Archives.)



Pleasure craft at Jackson & Sharp wharf. (Courtesy of Delaware State Archives.)



Railroad cars built by Jackson & Sharp were shipped not only to various parts of the United States but also to foreign countries, as in the case of this deck load. (Courtesy of Historical Society of Delaware.)



Early stage in schooner construction at Jackson & Sharp. (Courtesy of Delaware State Archives.)

In the pleasant section midway between Trenton and Easton is Treasure Island, an ideal camping spot, presented to the Boy Scouts of America by Edward W. Bok. (Courtesy of Commercial Museum, Philadelphia.)



A river steamboat coming in to the Municipal Dock at Trenton, 1920. By this time the automobile was beginning to take away the steamer's business. (Courtesy of Commercial Museum, Philadelphia.)



Up the river where formerly the Delaware & Hudson Canal connected with the Hudson. This picture, taken in 1918, shows where a state highway was built across a lock of the abandoned canal. (Courtesy of Commercial Museum, Philadelphia.)



Another section of the canal turned into a pigsty. (Courtesy of the Commercial Museum, Philadelphia.)



League Island Navy Yard on a busy day in September, 1919, when basket masts were in fashion. (Courtesy of Commercial Museum, Philadelphia.)



The *U. S. S. Delaware*, built in 1906, was in the battleship division sent, under Rear Admiral Rodman, to reinforce the British Grand Fleet in the North Sea when the United States entered the War in 1917. (Courtesy of Delaware State Archives.)



Greenwich Point, Philadelphia, coal piers in 1919. (Courtesy of Commercial Museum, Philadelphia.)



Three types of vessels important in the history of the Delaware River are included in this photograph. (Courtesy of Commercial Museum, Philadelphia.)



Dredges and shipyards have been prime factors in making the Delaware a great river.
(Courtesy of Commercial Museum, Philadelphia.)



The Market Street ferry was still busy in 1919, but the Camden bridge was soon to bring about a change. (Courtesy of Commercial Museum, Philadelphia.)



The Proprietors of West Jersey used to meet annually under a sycamore tree near this part of Gloucester Point to discuss the disposal of any new land created in West Jersey—under rights deriving from a charter going back to Charles II. (Courtesy of William Augustine.)



Gloucester Point about 1920. Remains of British frigate *Augusta* in foreground. In background is U. S. Immigrant Station. It was formerly the "castle" of William J. Thompson who made a fortune out of shad fishing, built a race track, and became widely known as the "Duke of Gloucester." (Courtesy of William Augustine.)



In spite of all efforts to prevent it, Cape Henlopen Lighthouse became gradually undermined by action of the ocean currents. It looked like this in April, 1925. (Courtesy of National Archives.)



Sturgeon and shad skiffs at New Castle, 1919. (Courtesy of Commercial Museum, Philadelphia.)



After the lighthouse fell, April, 1926. (Courtesy of National Archives.)



Enlargement of the Chesapeake & Delaware Canal. It was opened to traffic as a tide-water canal without any locks in 1927. (Courtesy of National Archives.)



Another public work having an important effect upon the use of the Delaware was the construction of the Philadelphia-Camden Bridge. Joseph Pennell made this etching of the bridge when it was under construction in 1929. (Courtesy of Philadelphia Museum of Art.)

XII

The Recent Past

(1930-1950)

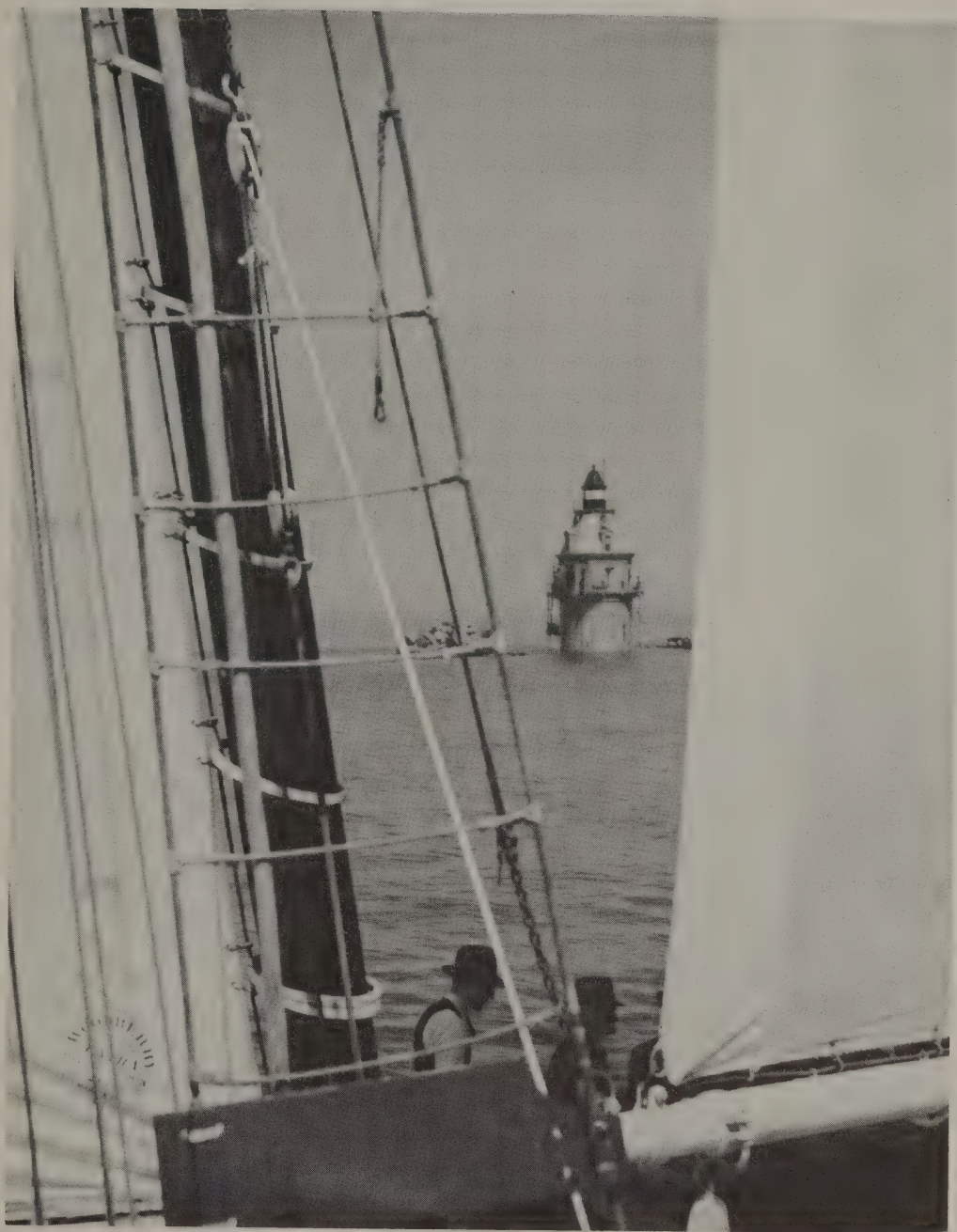
THE excited tempo of wartime industry and of the speculative nineteen-twenties slowed to a walk during the depression years. Yet, for the most part, people continued to live by the occupations for which they were fitted. Along the Delaware, for example, oystermen could always find a sale for their product. King crabs were still plentiful and in demand as fertilizer. The hunt for the sunken *De Braak's* Spanish gold was an alluring quest whether times were good or bad.

During the depression the "American Clyde" suffered as did the famous English shipbuilding center of that name. However, in the latter part of the 1930's, shipbuilding came to life again. World War II was, for this industry, a repetition of the previous war. Again overseas fighting brought the demand for more and more ships. This time, however, there was no Hog Island. Its remains had been leveled as part of a WPA project to prepare that area for Philadelphia's new airport. In any case, ships could now be built faster on fewer ways. This was made possible by improved techniques, such as extended prefabrication, welding, and the use of cranes capable of lifting whole sections of a ship on to the ways at one time. The Dravo Yard, on the site of Harlan & Hollingsworth at Wilmington, was one of the few new yards on the Delaware. But that together with Jackson & Sharp, Pusey & Jones, Sun "Ship," New York "Ship," and a revived Cramp's, made the Delaware resemble the Clyde once more.

At the end of this war, as at the end of the first, there was a surplus of ships. The Wilson Line found use for three of them. That line was now a summer excursion line with boats operating out of Washington, Baltimore, and New York, as well as Philadelphia. It made for itself three new excursion boats by rebuilding wartime patrol craft.

In recent times the Delaware has seen an increasing number of tankers. Refineries and tank farms have become prominent features of the Pennsylvania shorefront between Wilmington and Philadelphia. In addition, the Fairless Steel plant, near Morrisville, Pa., is transforming the landscape in that area and will increase the number of ore ships on the river.

The automobile, more than anything else, has finished off the river steamboat business. The small lines running up the creeks to places like Milford, Del., and Salem, N. J., disappeared first. The Wilson Line survived by going into the excursion business and because of its ownership of the New Castle-Pennsville and Wilmington-Penns Grove ferries. The automobile made the ferries profitable but also made the construction of the new Memorial Bridge inevitable. The crowded condition of the Philadelphia-Camden and Tacony Bridges has made it necessary to have another bridge at Gloucester and the Pennsylvania and New Jersey Turnpikes are being connected by a new bridge near Bristol. Motorists pass over the Delaware so fast that they would hardly notice its existence if they did not have to stop and pay toll.



Ship John Shoal Light is off the entrance to the Cohansey River and gets its name from the ship John which was wrecked at this spot. (Photograph by Graham L. Schofield.)



Oyster schooner fleet at Leesburg, N. J., before the change-over to motor propulsion was permitted in 1945. (Photograph by William Augustine.)

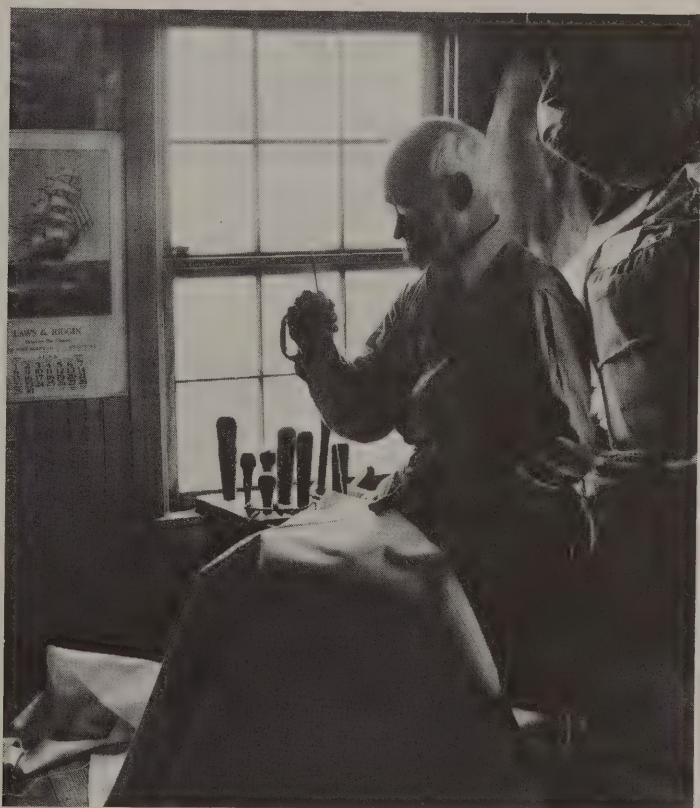


Oyster fleet across the Bay at Little Creek, Delaware, in the days of sail. (Courtesy of Delaware State Archives.)



Frank Lore was the blacksmith for the oyster fleet at Newport on Nantuxet Creek, New Jersey. This town, several miles in from the Delaware, was once an important oyster center. (Photograph by William Augustine.)

Edward B. Cobb, veteran sailmaker at Port Norris on the Maurice River, New Jersey. He began sailmaking as an apprentice to Robert DuBois in this same locality in 1888. (Photograph by William Augustine.)





Hauling oyster dredges aboard. (Courtesy of Delaware State Archives.)



Schooner *Cashier* with a good breeze and a full load. She is now motorized and is owned by John Reed of Port Norris. She is one of the oldest oyster boats still in use. (Photograph by Graham L. Shofield.)



Dredging oysters in fair weather. (Photograph by Graham L. Schofield.)



A rare sight in recent times. A 9½ foot long sturgeon caught by Capt. John Wheaton of Greenwich and Capt. Wyatt Miller of Bridgeton in May, 1953. Their catch weighed about 500 lbs., and yielded 95 lbs. of roe. (Photograph by Graham L. Schofield.)



Baymen at Bay Side, near Greenwich, N. J., sorting crabs caught on long "trot" or "layout" lines, such as that shown coiled in the tub. Bay Side was once called "Caviar" because of its shipments of sturgeon roe, some of which went to Russia. (Photograph by William Augustine.)



King or horseshoe crabs stacked to dry near Bowers Beach, Delaware, before being pulverized to make fertilizer. In the spring they habitually swarmed into shallow water at high tide. By the 1940's their numbers were greatly reduced. (Courtesy of Delaware State Archives.)



Hoisting sail aboard an oyster schooner. (Photograph by Graham L. Schofield.)



Oyster schooner built by William Parsons at Greenwich, N. J. (Photograph by Graham L. Schofield.)



The fleet at work, dredging seed oysters. (Photograph by Graham L. Schofield.)



The *J. Hammitt Lake*, Number 1 patrol or watch boat, in 1939. She was a motorized and cut-down bugeye. She usually patrolled the oyster bed areas under sail alone. (Photograph by Graham L. Shofield.)



Contemporary model of a 340-ton corvette of about 1780 and of the type of H. M.'s sloop-of-war *De Braak*. The *De Braak* was a Dutch vessel captured by the English and wrecked off Cape Henlopen in 1798 when laden with captured gold, silver, copper, and 200 prisoners. The value of her cargo has been estimated at from one to forty million dollars and has attracted treasure-seekers from the day of her capsizing to the present. (Courtesy of Capt. Charles T. Johnson.)



The newly-built *Morro Castle* at Cramp's. She was destined to have a firey ending off the Jersey coast in 1934. (Courtesy of Library of Congress.)



The *City of Chester*, built in 1888, was rebuilt in 1931. Renamed the *City of Washington* she looks as shown in this picture. (Courtesy of Wilson Line.)



Launching, on Armistice Day, November 11, 1943, of DE (Destroyer Escort) *Senegalais* built for France. (Courtesy of Dravo Corporation.)



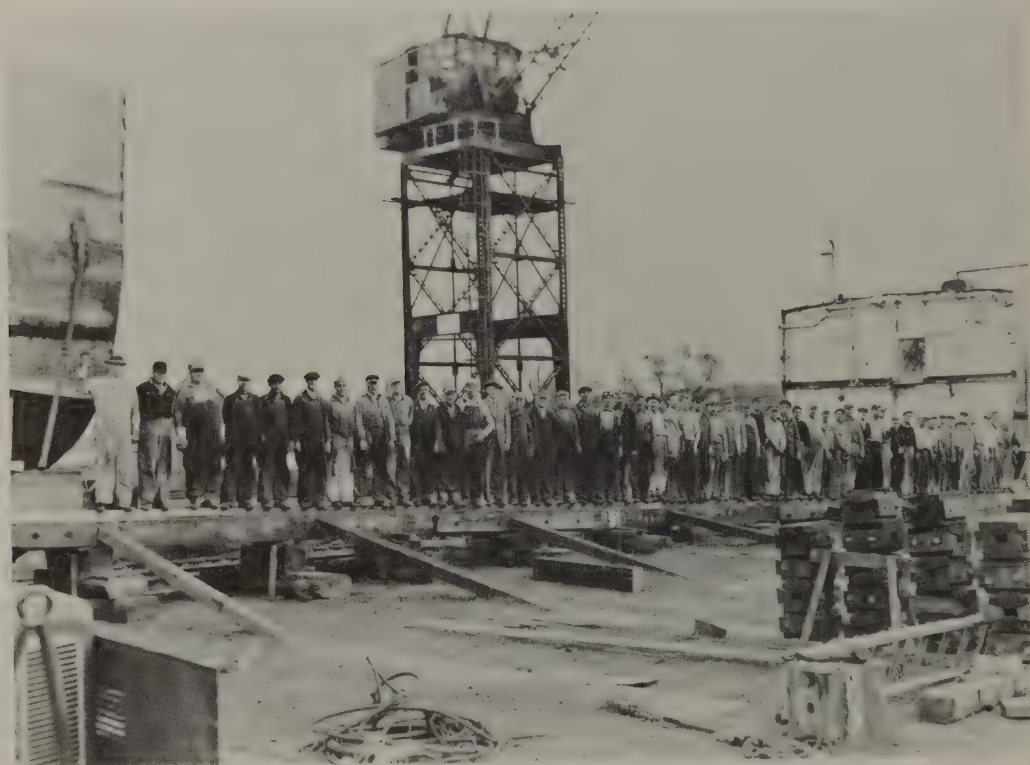
The *Brandywine*, built originally in 1885, was at one time the *Dixie* and, when rebuilt in 1936, became the *Pilgrim Belle*. She is still in operation but her original compound engine has been replaced by a triple expansion one which materially reduces the vibration "to which all previous riders had become accustomed." (Courtesy of Wilson Line.)



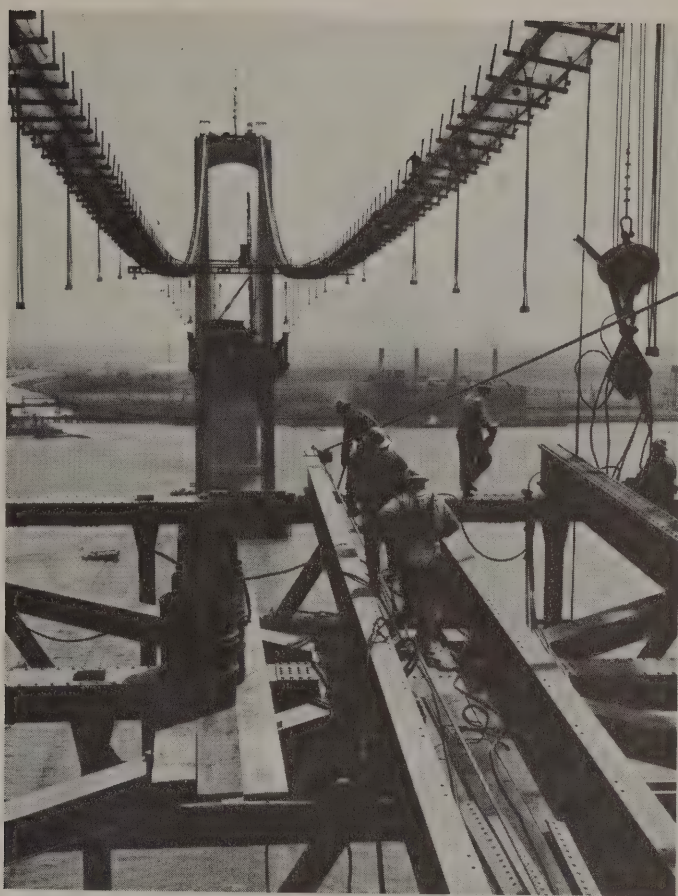
Wartime work at Delaware Bay Shipbuilding Company, Leesburg, N. J. Private schooner being repaired and a wooden ATR being completed for the Navy. (Photograph by Graham L. Schofield.)



Marine disasters are a part of the history of all bodies of water. This tanker blocked the C. & D. Canal and salvage work could not be undertaken because of its dangerous gasoline cargo. The problem was finally solved by Hugh Emmons who emptied the ship by hauling it towards shore by means of bulldozers. (Photograph by Harry A. Lemmon.)



Lawrence C. Campbell, at extreme left, and his working force bridging the 70-foot gap in PC-1258 about to be rebuilt as the *Boston Belle*, 1949. (Courtesy of Wilson Line.)



After the cables were strung. This bridge was completed in 1951 and has been dedicated to the men and women of Delaware and New Jersey who gave their lives during World War II. (Courtesy of Merritt-Chapman & Scott Corporation.)



The *Washington*, *Cincinnati*, and a third member of the fleet of the New Castle-Pennsville ferry line ("that gold mine") in the busy days shortly before 1951 when it was replaced by the Memorial Bridge. This ferry service originated in 1925 and flourished in the automobile age, being an important link in the route connecting New York and Florida. The Wilson Line began an opposition ferry in 1926 which caused the "Great New Castle Ferry War" and led, a year later, to a merger of the two companies under the name Delaware-New Jersey Ferry Company. (Courtesy of Edward O. Clark.)



Among the more recent changes on the Delaware are those making way for the automobile. The need for more bridges is suggested by the picture of rush hour on the Philadelphia-Camden Bridge. (Courtesy of Delaware River Port Authority.)



The Delaware Memorial Bridge above New Castle. The two tower piers extend 89.5 and 118.5 feet, respectively, below the average river level. They were built by Merritt-Chapman & Scott Corp., and the superstructure by the American Bridge Division of the U. S. Steel Corporation. (Courtesy of Merritt-Chapman & Scott Corporation.)

XIII

The Delaware Today

THE history of the Delaware emphasizes its division into three parts. From its source to Trenton the river cuts its way through mountainous and hilly country and is, generally speaking, shallow and interrupted by a series of rapids. Before the railroad came and while timber was plentiful, this upper section was well suited for rafting and, in this early period before the advent of the steam-engine, the river also supplied power for mills and water for canals. From Trenton to the vicinity of Wilmington is a sixty-mile southwesterly stretch of navigable water along the line of population concentration. The third part of the river is its southeasterly march through the Bay to the sea.

An imaginary trip down the Delaware from source to outlet, and a glance at its history, may serve to highlight certain of its characteristics.

The upper portion has always served two general purposes. In the first place it provides a way through difficult terrain. Highways follow the river from each of its main sources and continue on down stream to Trenton. Along the stretch from the Lackawaxon to Port Jervis the old unused canal, the railroad, and the busy highway follow closely the snake like turnings of the river. At Port Jervis the canal or what is left of it heads for the Hudson while a branch railroad and the highway continue southward with the river. The old Lehigh Canal can still be seen where it comes in at Easton and accompanies the river to Morrisville before breaking off in the direction of Bristol.

In addition to serving as a natural way through mountain territory, this upper part of the Delaware has served as an important recreational area. It has great natural beauty. The Water Gap, where the river forces its way through the Appalachian chain, has always been a favorite subject for painters. At New Hope, a short distance above Washington's Crossing, an artists' colony is located. In its calmer stretches the river invites canoeing and outboard motorboating while its wooded shoreline makes it a vacationland for summer escapees from the heat and dirt of the city.

It is a different kind of river that flows from Trenton to Wilmington. It is broad, navigable, and increasingly industrial. As if it turned from childhood to maturity and put away its playthings, it gets down to the more serious business of making a living. This, as we have mentioned before, is

where the river becomes part of the main stream of Atlantic coastal travel and trade. Travelers, whether they go by train, automobile, or airplane, follow this route. On the New Jersey Turnpike this sixty-mile stretch can be traversed in an hour and the motorist will not see or be conscious of the fact that he is paralleling the river.

Towns, such as Bordentown or Burlington, have lost their dependence upon the river and look inland to their highway connections with nearby industry and to the new communities which they serve as shopping centers.

The attractiveness of this region for industry has been emphasized by the establishment of the United States Steel plant at the bend of the river opposite Trenton. Among determining factors are rail and road connections, fresh water supply, nearby population centers, and the Delaware itself. The river is not the least of these factors, for it makes possible a water connection with sources of raw materials and distant markets.

Philadelphia is still a port of importance even though it has lost most of its river and coastal passenger business and never succeeded in securing a large slice of New York's transatlantic traffic. The city's waterfront is still busy and it has gained relative to New York in recent times. Downstream from Philadelphia to Wilmington a new kind of port or series of ports has developed along with the oil industry. This region now leads the nation in terms of barrels of crude oil brought in and refined oil taken out. Tankers are prominent among the vessels to be seen upon the river.

While thinking of the Delaware as a part of the coastal artery of commerce and industry, it should be noticed that new bridges are making the River less and less of an obstacle for crosswise traffic.

The lower third of the river merges into the Bay at Liston's Point, Delaware, where an imaginary line crosses to New Jersey. To the ordinary observer the river and bay appear to be one and the same, except for the gradual enlargement of the river's waters.

The bay shore, on both sides, is characterized by marshlands and numerous creeks. This is an area where crabbers, oystermen, muskrat and waterfowl hunters make a living or find sport. Shallow-draft boats can use the creeks but ocean-going craft find no haven until they reach the breakwater at Lewes. The bay is funnel-shaped with its broad mouth facing south-eastward, the direction from which many of the worst storms come.

The growth of industry along the Delaware's banks has not only changed its appearance but also its contents. The cutting down of the forests has had the effect of reducing the water in the creeks which feed the main stream as it has also hastened the silting-up process. Constant dredging is required to keep the main channels open. There is now need for extending the deep channel above Philadelphia. The possible effects of this upon tidal flow has been studied by Army engineers. City and industrial wastes

have polluted the river's waters. The shad no longer come up in great rushes every spring. A systematic study of the river's marine life had been undertaken and "Incodel," a four-state organization, is concerning itself with the problem of conservation of the river basin's natural resources.

A distinctive personality grows out of the various qualities which characterize the Delaware River. Its upper reaches have the beauty and vigor of youth. When, at Trenton, it turns adventurously westward, growing bigger and running straighter, it has the solidity and single-mindedness of maturity. At the end, when it swings southward to lose itself in the greater ocean, it takes on the grandeur and dignity of age conscious and proud of its past. The Delaware is one of America's great rivers.



Above Hancock, looking upstream, where river, railroad, and highway snake along side by side. This is called the West Branch or the Little Delaware and meets the East Branch at Hancock. Both branches have their start as rivulets on the western slope of the Catskill Mountains. (Photograph by Author.)

Toll bridge between Lackawaxen, Pa., and Minisink Ford, N. Y., originally an aquaduct for the Delaware & Hudson Canal, erected by John A. Roebling in 1849. The upstream ends of the piers were slanted in order to withstand the pressure from ice floes. (Photograph by Author.)

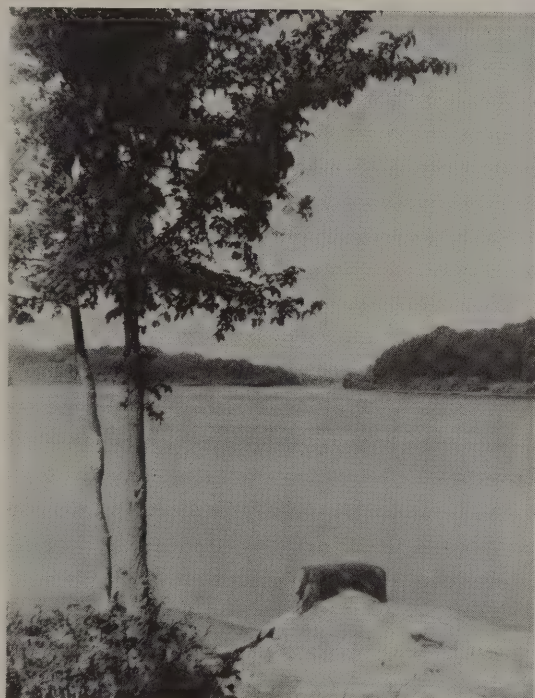


Looking upstream from "Hawks Nest Road" above Port Jervis, N. Y. The railroad swings with the River on the Pennsylvania side and the highway is far up the mountain on the New York side. (Photograph by Author.)

Looking downstream from the same point on "Hawks Nest Road" or, in road map parlance, on Route 97. (Photograph by Author.)



New toll bridge above the Water Gap. (Painted by Edwin D. Mott.)



Looking downstream from the Tri-State Marker, near Port Jervis, where New York, New Jersey, and Pennsylvania meet. (Photograph by Author.)



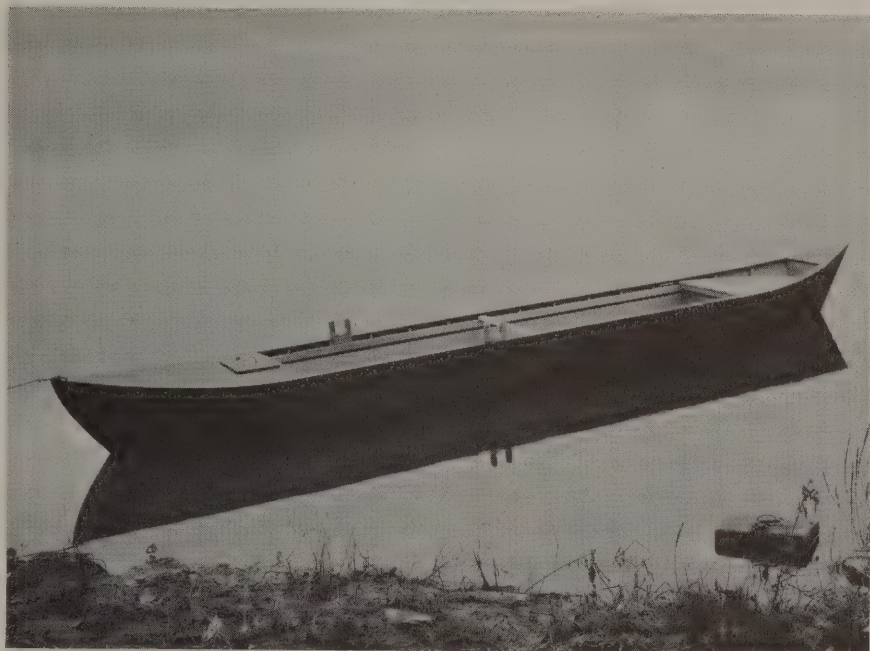
The Delaware's last covered bridge was built in 1869 connecting Columbia, N. J., with Portland, Pa., was washed out in August 1955. Upriver is a railroad bridge and the Water Gap. (Photograph by Roger F. Hicks.)



Looking upstream from Belvidere-Riverton Bridge. (Photograph by Roger F. Hicks.)



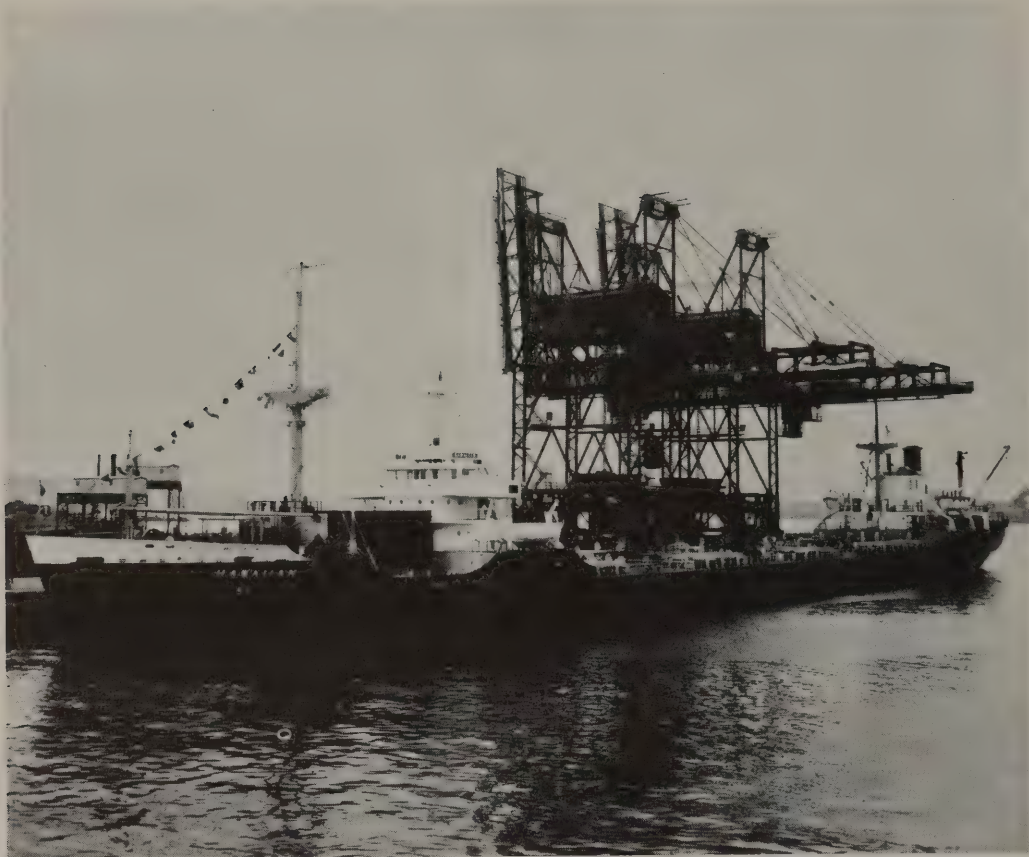
Swimming instruction at the Belvidere, N. J., Municipal Beach. (Photograph by Roger F. Hicks.)



Replica of Durham boat, built to one-third size and without walking-boards. Made at Lambertville, N. J., by E. Chase, boatbuilder, and used to reenact Washington's crossing. (Photograph by E. Chase.)



Washington's Crossing in winter. The chunks of ice may have looked like this on December 25, 1776. (Photograph by Aero Service Corporation.)



First iron ore delivery from Quebec-Labrador fields, August 1954. Cargo ship being unloaded at New Pennsylvania Railroad pier, Greenwich Point, Philadelphia. (Courtesy of Delaware River Port Authority.)



U. S. Steel, Fairless Plant, in process of erection, near Morrisville, Pa. (Photograph by Aero Service Corporation.)



The original Pennsbury Manor built by William Penn in 1683 on his estate which comprised 3,431 acres and extended for 5½ miles along the Delaware across from Burlington. Penn was only able to use it during the two years preceding his return to England in 1701. In that interval he entertained lavishly. The building fell into such a state of decay by Revolutionary times that it had to be torn down. The Commonwealth of Pennsylvania has rebuilt it in as authentic a manner as possible, as is shown in this photograph. The manor house looks out upon the river, twenty-four miles above Philadelphia, and now, instead of Indians, has the Fairless steel plant as its near neighbor. (Courtesy of Pennsylvania Historical and Museum Commission).



View from the New Jersey abutment of the new Turnpike bridge looking along the line of piers toward the Delaware River and Pennsylvania. (Courtesy of Merritt-Chapman & Scott Corporation.)



Site of Treaty Elm in public park at Kensington (Shackamaxon), Philadelphia. Electric power plant on left and Delaware River in the background. (Photograph by John C. Tyler.)



Philadelphia harbor serves a large segment of the eastern seaboard. (Photograph by Aero Service Corporation.)



Remains of "Chevaux de Frise" or "Stockadoes" used to block the river during the Revolution. Red Bank Battlefield National Park, N. J. (Photograph by John C. Tyler.)



Remnants of the ribs and keel of the British frigate *Augusta* which ran aground and blew up during the Battle of Mud Island in 1778. She was being towed when she sank for good off Gloucester, where these pieces can still be seen at very low tide. (Photograph by William Augustine.)



This was once Hog Island Shipyard. The line of what used to be fifty ways. (Photographs by John C. Tyler.)



Junction of the Schuylkill and Delaware Rivers. The new Penrose Avenue Bridge across the Schuylkill connects with the new airport. (Photograph by Aero Service Corporation.)



Sunoco tank farm and refinery at Marcus Hook, Pa. (Courtesy of Sun Oil Co.)



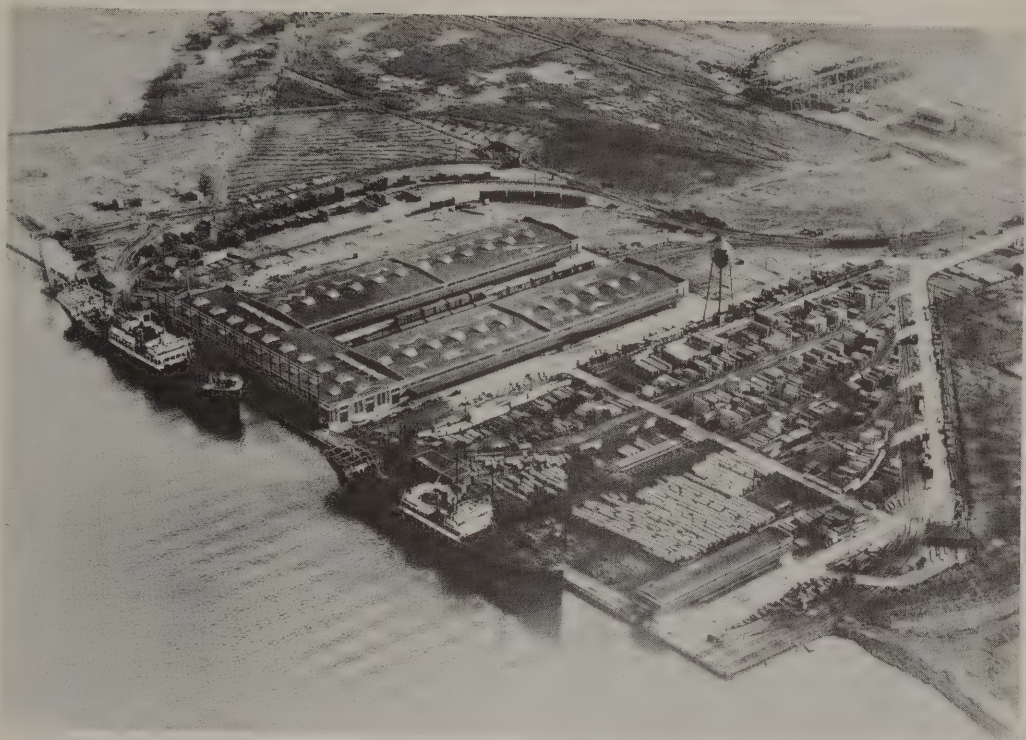
The Sun Shipbuilding Yard at Chester, Pa., began because of tanker scarcity during World War I and expanded considerably during World War II, for the same reason. (Courtesy of Sun Shipbuilding and Dry Dock Company.)



Ferry between Chester, Pa., and Bridgeport, N. J., one of the few left on the Delaware. On the occasion of this picture it had run aground in the fog and was waiting for high tide. (Photograph by William Augustine.)



Supertanker *S. S. Delaware Sun*, deadweight tonnage 30,000, built by Sun "Ship" in 1952. She embodies the latest designs for safety, economy of operation, and crew comfort. Her capacity is 215,000 barrels of crude oil, or 250,000 barrels of gasoline, enough to operate 13,500 automobiles for one year. (Courtesy of Sun Oil Company.)



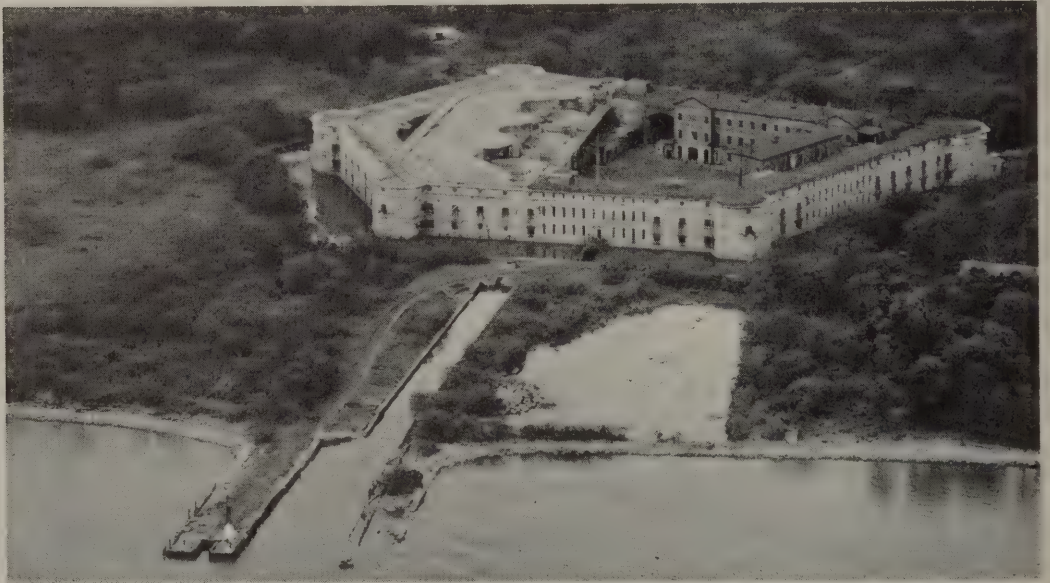
Marine Terminal at Wilmington. (Courtesy of Chamber of Commerce, Wilmington.)



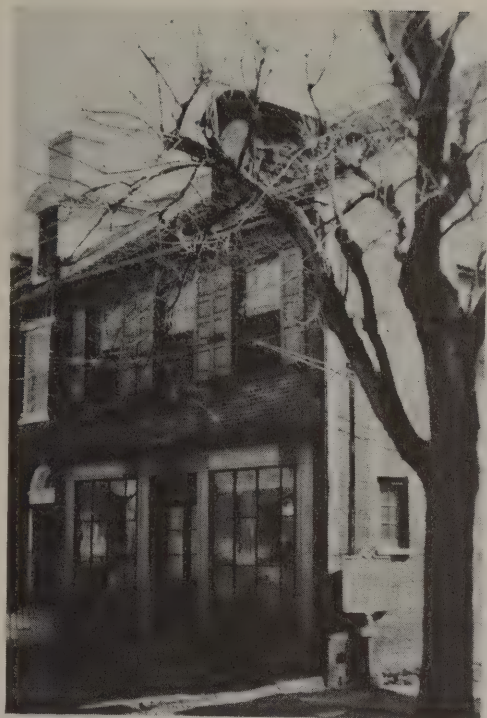
Fort Christina State Park at "the Rocks" where the first Swedish settlers landed. (Courtesy of Chamber of Commerce, Wilmington.)



Where the Delaware begins to widen as it turns towards the ocean below the Memorial Bridge. (Photograph by Aero Service Corporation.)



Fort Delaware was declared surplus property in 1944. Its granite walls are built on top of 6,000 piles. The fort had cost over a million dollars when finished in 1860. It is now within the jurisdiction of the State Parks Commission of Delaware and is administered by the Fort Delaware Society, which is interested in its preservation. (Photograph by Harry A. Lemmon.)



All sailing packets and steamboats stopped at New Castle before the extension of the French-town railroad to Wilmington in 1852. This is the former ship chandler's store at the corner of Packet Alley. (Photograph by John C. Tyler.)

William Hancock's house at Hancock's Bridge, N. J., was built in 1734 and is the place where, in 1778, a force of Loyalists and British surprised and bayoneted about ninety American militiamen. By mistake they also killed Judge Hancock who, a Loyalist, was a prisoner in his own house. This attack was in retaliation for aid given General Anthony Wayne who was sent out on a foraging party from Valley Forge. (Photograph by John C. Tyler.)



Edmond Liston built this house, with its gambrel roof and Flemish-bond brickwork, in 1739. It was raided, in 1747, by a band of French and Spanish privateersmen and Liston's wife was wounded. He was unable to get protection or redress for his losses. On the shore at Liston's Point is a marker representing one end of an imaginary line to New Jersey indicating where bay and river meet. A freighter can be seen in the distance. (Photograph by John C. Tyler.)





Battery Park, Delaware City, at the former entrance to the canal. The hotels and restaurants here once did a thriving business. (Photograph by John C. Tyler.)

Vessel passing through the new wide and tide-water-level canal, having come by way of the new entrance which is two miles below Delaware City. (Photograph by John C. Tyler.)



Lift bridge at the "Deep Cut" where the C & D. Canal goes through the height of land in the middle of the peninsula. (Photograph by John C. Tyler.)



Long's boatyard, Salem. Small boats will always be in demand where there are creeks and fish. (Photograph by author.)

Lewes has become a well-known port for salt-water fishing, as these boats, hauled out for the winter, indicate. (Photograph by John C. Tyler.)



Motorized oyster boats at Greenwich, N. J. (Photograph by Author.)



Fishermen's wharves at Bower's Beach, Delaware. (Photograph by John C. Tyler.)



Motorized schooners *Mac Fowler* and *Margaret Fowler* at Bivalve on the Maurice River, N. J. (Photograph by William Augustine.)



The marshes have always had an attraction for duck hunters.
(Courtesy of Board of Game & Fish Commission.)



Muskrat trapping is a seasonal occupation on the tidal marshes on both sides of the bay. Owners of the marshlands earn from \$7 to \$50 per acre per year by this means.
(Courtesy of Delaware Board of Game & Fish Commission.)



Pilot boat *Philadelphia* cruises off the Capes to place pilots aboard incoming vessels and take them off outgoing ones. The *Philadelphia*, originally the Coast Guard Cutter *Mohawk*, is the third steam vessel of that name owned by the Pilots' Association. (Photograph by John C. Tyler.)

Pilot climbs aboard a ship from the tender. (Photograph by John C. Tyler.)



The ship proceeds up the Bay and the tender, operated by apprentice pilots, returns to the *Philadelphia*. (Photograph by John C. Tyler.)

Lighthouse at eastern end of the new harbor of refuge breakwater. At the western end, about a mile and a half distant, there is a cluster of ice-breakers. (Photograph by John C. Tyler.)



Cape May Lighthouse is thirteen miles from Cape Henlopen. Over the years, the sands of Cape May are retreating and those of Cape Henlopen advancing. (Photograph by John C. Tyler.)



It was hoped that the concrete ship might help to hold the beach inside Cape May. A short distance up the Bay from here, New England whalers settled, in 1685, on a bluff known as Town Bank. That area has disappeared as a result of erosion. (Photograph by John C. Tyler.)

Lightship anchored four miles offshore guarding the Hen and Chickens Shoals. The *Relief* is temporarily replacing the regular *Overfalls* lighthouse. (Photograph by John C. Tyler.)

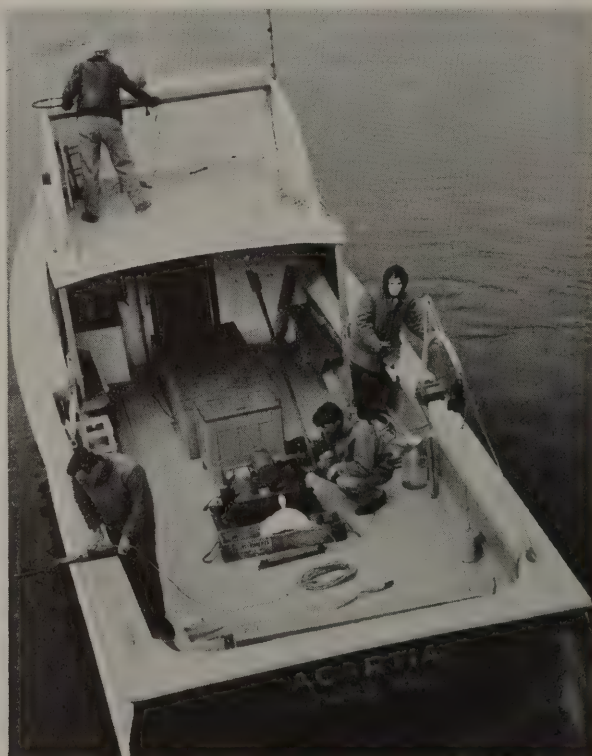


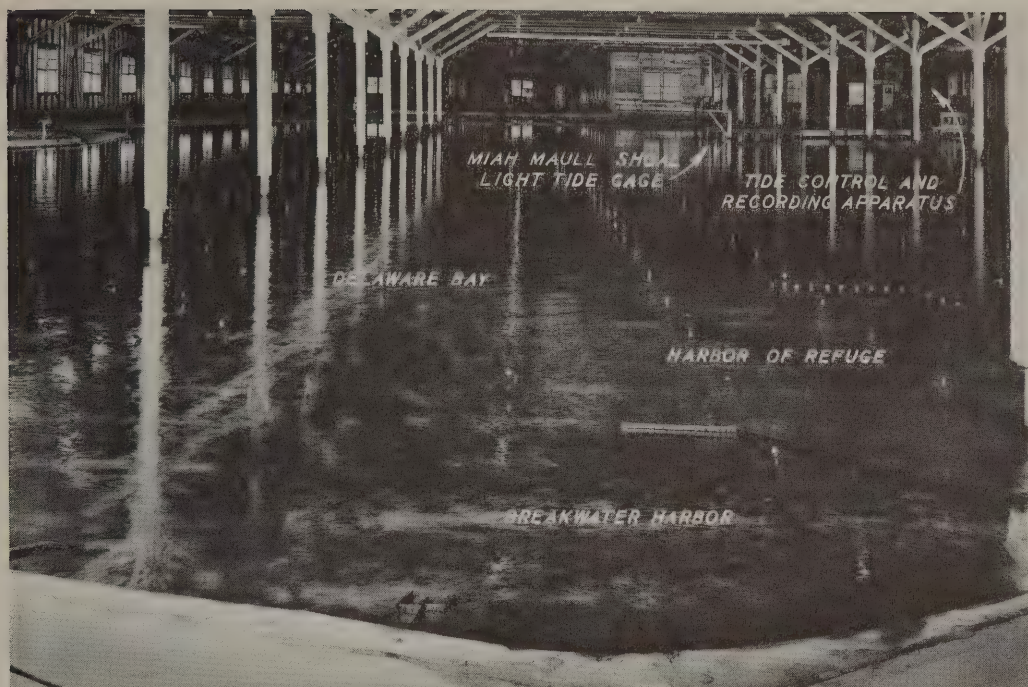
The marina at Cape May City is near the entrance to the Cape May Canal which permits shallow draft craft to go into Delaware Bay without going around Cape May. (Photograph by John C. Tyler.)



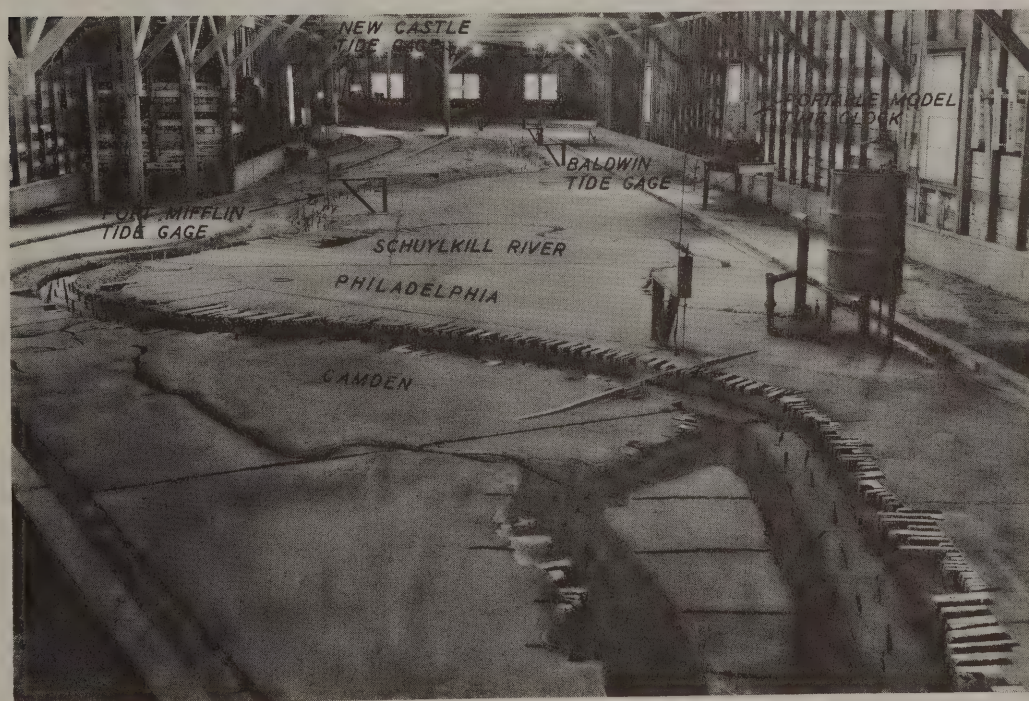
Collecting specimens from an oyster stake. The University of Delaware Marine Laboratory is making a systematic study of marine life in the Bay and River. Its purpose is to discover how this natural resource may be better preserved and developed and, at the same time, give training to students and contribute to biological knowledge through fundamental research. (Courtesy of University of Delaware Marine Laboratory.)

The floating part of the Marine Laboratory. (Courtesy of University of Delaware Marine Laboratory.)





Army Engineers at the Waterways Experiment Station, Vicksburg, Miss., have built a replica of the Delaware River to test the effects of a deeper channel upon tidal flow and salinity. The old breakwater is indicated in the foreground and the ice breakers are further out to the right. (Courtesy of Corps of Engineers, U. S. Army.)



Replica of the River at Philadelphia, with the water turned off. (Courtesy of Corps of Engineers, U. S. Army.)



The Delaware River basin and its place in the world are explained to school children at the Commercial Museum in Philadelphia. When these children grow up, they will more fully realize the importance of having a four-state organization, the Interstate Commission of the Delaware River Basin, "Incodel" for short, to concern itself with the preservation and improvement of the waters and other natural resources of this area. (Courtesy of Commercial Museum, Philadelphia.)

Index

A. L. Harvey, barque, 88
 Abbott's Shipyard, 134, 135, 166
 Adolphus, Gustavus, 2, 5
 Augusta, British frigate, 31, 36, 195, 225
 Alabama, Confederate warship, 87
 Albert R. Paul, schooner, 166
 Alfred, ship, 23
 Alfred Thomas, steamboat, 101
 Algerian corsairs, 38
 Algonquin, ship, 79
 Alliance, American frigate, 29, 37
 Alvarado, Spanish gunboat, 171
 America, 35, 37, 38, 63, 90, 95, 100, 231
 American Bridge Division of U. S. Steel Corp., 214
 American Car & Foundry Co., 140, 181, 187
 American Eagle, ship, 42
 American International Shipbuilding Corp., 174
 American ships, 114
 America's Cup, 121
 "Amphibious digger," Orukter Amphibolos, 55
 Amphitrite, U. S. monitor, 168
 Andersonville prison, 96
 Andrea Doria, brig, 23
 Angler, motorboat, 165
 Anna B. Russell, schooner, 123
 Anna Worrill, ship, 123
 Appalachian Mts., 215
 Arch Street, Phila., 44
 Argall, Capt. Samuel, 13, 16
 "Arks," 50, 64
 Asia, ship, 49
 Astor, William, 167
 Atlantic Ocean, 1, 52
 Auld, A., artist, 111
 Ayres, Capt., 23, 27

 Baltimore, 14, 15, 38, 63, 65, 66, 107, 126, 145, 199
 Baltimore & Philadelphia Steamboat Co., 66
 Bangor, steamship, 95, 99
 "Barn Doors," 144
 Barnegat Bay, 1
 Barralet, John J., artist, 57
 Barrett's (George F.) Sawmill, 117
 Barry, Capt. John, 23, 24, 25, 26, 29
 Barton's boatyard, 165
 Bathe, G., 56
 Batteaux, 20
 Battery Park, Del. City, 232
 "Battle of the Kegs," 34
 Bay Side, N. J., 156, 206
 Belfast, North of Ireland, 41
 Belvidere, N. J., 220
 Belvidere-Riverton Bridge, 220
 Betsey, ship, 45
 Bethlehem Steel Corp., 140
 Bivalve, N. J., 234
 Birch, Thomas, artist, 20, 43, 70, 71, 84, 106
 Birch, (W. Birch & Son), 43, 44
 Black Ball Line, 79
 Black Cross Line (Liverpool Packet Line), 87
 Blackbeard, 22
 Blackbird Creek, 22
 Bloodgood, John, 69
 Blue Anchor Tavern, 14, 17, 21
 Board of Health, Phila., 52
 Bodner, Charles, artist, 74
 Bok, Edward W., 190
 Bombay Point, 2
 Bonaparte, Joseph, 38, 50
 Bonaparte, Napoleon, 38
 Borden, Joseph, Jr., 15
 Bordentown, 1, 14, 15, 25, 34, 38, 50, 51, 61, 63, 64, 70, 73, 75, 76, 94, 139, 150, 216
 Boston, Mass., 38, 97, 113
 Boston Belle, motor craft, 212
 Boston Tea Party, 27

Bouquet de Woiseri, J. L., artist, 61
 Bowers Beach, Del., 206, 234
 Boy Scouts of America, 190
 Brandywine, Battle of, 25
 Brandywine river, 10, 14, 37, 41, 42, 157
 Brandywine Shoal Lighthouse, 175
 Brandywine, steamboat, 127, 211
 Breakwater (new), 139, 162, 236
 Breakwater (old), 79, 81, 138, 157, 216, 239
 Bridgeton, N. J., 205
 Bristol, Pa., 20, 64, 77, 149, 174, 200, 215
 British at Philadelphia, 25, 26, 31, 34, 36
 British attack on Nancy, 25
 British flag, 107
 British Navy, 24, 25, 38
 British vessels, 28, 31, 121, 181, 192, 195, 225
 Broadships, 23, 27
 Brooklyn, N. Y., 147
 Brooklyn, U.S.S., 170
 Bucks County, Pa., 53
 Burlington, N.J., 14, 25, 26, 63, 69, 75, 76, 161, 216, 223
 Burlington Island, 76
 Burlington, steamboat (formerly John A. Warner), 125
 Burlington Steam Sawmill, 75
 Burlington Water Works, 75
 Bush Line, 63, 173

Cabot, brig, 23
 Cabot, John, 1, 13
 Calcutta, 49
 California, state of, 80
 Calhoun E. Ross, schooner, 166
 Camden, N. J., 44, 52, 59, 60, 62, 64, 94, 95, 98, 117, 140, 151, 162, 171
 Camden, steam ferry, 52
 Camden & Amboy Railroad, 63, 64, 73, 74
 Camden ferry, 163
 Campbell, Lawrence C., 212
 Canada, 13
 Canal construction, 63
 Canal boats, 77
 Canoe clubs, 143
 Canton, ship, 37
 Cape Henlopen, 2, 6, 15, 139, 209, 237
 Cape Henlopen Lighthouse, 40, 138, 196, 197, 237
 Cape May, 2, 92, 95, 105, 106, 126, 129, 185, 187, 237
 Cape May, steamboat (originally Republic, later Dreamland), 126
 Cape May City, 237
 Cape May County Canal, 237
 Cape May Navy, 24
 Carbondale, Pa., 64, 148
 Caribbean trade, 37
 Caroline Hall, schooner, 124
 Carteret, Sir George, 13
 Case, E., 221
 Cashier, schooner, 204
 Casimir, Count Ernest, of Nassau, 12
 Catskill Mts., 218
 Caviar, N. J., 206
 Ceres, whaleship, 80
 Charles II, King of England, 13, 195
 Charleston, S. C., 110
 Chesapeake & Delaware Canal, 63, 65, 96, 152, 153, 173, 174, 177, 197, 212, 232
 Chesapeake Bay, 1, 16, 25, 38, 63, 173
 Chesapeake Beach, 126
 Chester, Pa., 13, 97, 114, 129, 130, 152, 164, 168, 175, 227
 Chester, Pa., Bridgeport, N. J. ferry, 228
 "Chevaux de frise" (stockadoes), 23, 25, 32, 33, 225
 China, 29, 37, 47, 87
 Christina, Queen of Sweden, 5
 Christiana Creek, 82
 Christina river, 2, 10, 24, 41, 42, 99, 100, 102, 174
 "Christinehamn," 8
 Christmas, 30

Church of the Redeemer, 94
 Churchman's Missionary Association for Seamen, 94
 City of Chester, steamboat, 127, 210
 City of Washington, steamboat (formerly City of Chester), 210
 City of Wilmington, steamboat, 175
 City Council of Phila., 48, 59
 City Ice Boat No. 3, 162
 Cincinnati, ferryboat, 213
 Civil War, 95, 103, 106, 110, 111, 113
 Clapier, Lewis, 87
 Clermont, steamboat, 51, 61
 Cleveland, President Grover, 169
 Clifton, steamboat, 68
 Clyde Line, 113
 Clyde river, 199
 Coal, Pennsylvania anthracite, 50, 64, 173
 Coal piers at Phila., 193
 Coal schooners, 123
 Cobb, Edward B., sailmaker, 203
 Cobblestones, 117
 Cochection Falls, 142
 Cohansey river, 201
 Cohansey Lighthouse, 122, 123
 Columbia, steamboat, 126
 Columbia, N. J., 219
 Columbian Magazine, 57
 Columbus, ship, 23
 Commercial Museum, Phila., 240
 Commissary General of Prisons, 96
 "Committee for Tarring and Feathering," 27
 Concrete ship, 237
 Cone, Jonathan, 125, 126
 Confederate raiders, 107
 Connecticut, state of, 53
 Constellation, American frigate, 38
 Constitution, American frigate, 38, 49
 Constitution, United States, 37
 Constitutional Congress, 61
 Continental Congress, 26, 29
 Continental Navy, 23, 37
 Conyngham, Capt., 87
 Cooper family of Camden, 44, 62
 Cooper, Peter, 16
 Cooper, William, 58
 Cope, Israel, 86
 Cope, Jasper, 86
 Cope Line, 79, 88
 Cope, Thomas P., 47, 79, 86
 Corinthian Yacht Club, 144
 Cotton trade, 80
 Covered bridge, 219
 Cramp, Charles H., 114, 132, 140
 Cramp, William, 107, 132
 Cramp's Shipyard (William Cramp & Sons Ship and Engine Building Co.), 94, 97, 113, 114, 132, 133, 140, 169, 179, 181, 199, 209
 Crosswicks Creek, 150
 Cuba, 129

Dahlgren, Rear Admiral John A., 110
 Dallett Line (Red D Line), 107
 Darby Creek, 84
 Davisville, Pa., 53
 De Braak, sloop-of-war, 199, 209
 De La Warre or Delaware, (see West, Thomas), 7
 De Vries, Capt. David P., 6
 Decatur, Stephen, Jr., 45, 48
 Declaration of Independence, 23, 46
 Deep Cut, C & D. Canal, 232
 Delaware, steamboat, 104
 Delaware Sun, tanker, 176
 Delaware Sun, S.S., supertanker, 228
 Delaware, U.S.S., 90, 192
 Delaware & Hudson Canal, 64, 147, 191, 218
 Delaware & Raritan Canal, 63, 64, 69, 150, 151
 Delaware Avenue, Phila., 85, 176
 Delaware Bay Shipbuilding Co., 136, 211

- Delaware City, Del., 95, 125, 152, 153, 177, 232
 Delaware City, Salem, and Philadelphia Steam Navigation Co., 124
 Delaware Division Canal, 77, 148
 Delaware Gazette, 41
 Delaware Memorial Bridge, 200, 213, 214, 230
 Delaware Navy, 26
 Delaware-New Jersey Ferry Co., 213
 Delaware River Steamboat Co., 126
 Delaware, state of, 26, 65, 213
 Delaware, State Parks Commission, 230
 Delawares, Indian tribe, 10
 Dennington, Clement L., 94
 Deposit, N. Y., 141
 Dewey, Admiral George, 172
 Dixie, steamboat (formerly *Brandywine*), 211
 Doane, Bishop G. W., 76
 Dock Creek, 14, 17, 21
 Dock Street, 14, 39
 Dock Street Wharf, 94
 Dolly Spanker, ferry, 152
 Dorothy Belle, ship, 136
 Dover, Del., 14, 40
 Dravo shipyard, 199, 210
 Dreamland, steamboat (formerly *Re-public and Cape May*), 126
 Dredges, 52, 55, 194
 Du Bois, Robert, sailmaker, 203
 Du Pont family, 38, 42
 Du Pont, Rear-Admiral Samuel F., 110
 Ducker, sailboat, 122
 "Duke of Gloucester" (William J. Thompson), 195
 Durand, A. B., artist, 60
 Durham, iron works, 20
 Durham boats, 20, 30, 57, 221
 Durham, Robert, 20
 Dusseldorf, Germany, 30
 Dutch settlers, 1, 2, 3, 13, 15
 Dutch East India Co., 2
 Dutch West India Co., 2, 6

E. W. Tunnell, pilot boat, 164
Eagle, steamboat, 52, 64
Eagle Point, steamship, 181
 Eakins, Thomas, artist, 30, 119, 120, 121, 122
 East Branch, 160, 218
 East Indies, 37
 Easton, Pa., 64, 77, 101, 190, 215
 Elliott, Lieut. W., R.N., 31
 Elsinboro Point, 3
 Emergency Shipbuilding Corp., 173
 Emmons, Hugh, 212
 England, 2, 3, 27, 29, 35, 37, 38, 74, 114
 English colonists, 13, 15
 English Navy, 11, 209
 English shipbuilding, 199
 Episcopal Church, 76
 Ericsson, John, 64, 69, 97, 109
 Ericsson Line, 64, 67, 153, 177
 Ericsson screw, 66
 Erie Railroad, 148
 Essig, George E., artist, 163
 Essington, Pa., 3, 144
Ester, schooner, 123
 Europe, 85, 173
 Evans, Oliver, 52, 54, 56
 Excelsior bar, 164
 Expeditionary Force, 174

 Faden, William, mapmaker, 34
 Fairless steel plant, 199, 222, 223
 Fall River Line, 131
 Falls of Trenton, 113
 Farrer, Virginia, 7
 Farrer map, 16
 Federal Government, 65
 Ferris, Benjamin, artist, 19
 Finn's Point, 96
 Finnish settlers, 2
 Fish House, 118
 Fish's Eddy, 160
 Fisher, Col. Henry, 24
 Fitch, John, 51, 53, 54, 55, 63
 Florence, N. J., 76
 Florentines, 1, 2
 Florida, 213
 Fort Billingsport, 25
 Fort Casimir, 3, 11, 12, 13
 Fort Christina, 3, 11, 12
 Fort Christina State Park, 229
 Fort Delaware, 95, 96, 111, 230
 Fort Delaware Society, 230
 Fort Elfsborg, 3
 Fort Island (Mud Island), 32
 Fort Mercer, 25
 Fort Mifflin, 32
 Fort Nassau, 2, 12
 Fort Ticonderoga, 28
 Fort Trinity, 3
 Foul Rift, 116
 Fourth Street, Wilmington, 135
 France, 2, 38, 44, 210
 Frederica, Del., 124, 137
 French alliance, 26
 French emigrés, 38
 French privateers, 45, 231
 French Revolution, 38
 Frenchtown, 15
 Frenchtown Railroad, 231
 Front Street, Phila., 17, 21
 Fulton, Robert, 51, 53, 61

 Garmeray, Louis, artist, 44
General Washington, ship, 38, 41
George May, schooner, 134, 135
 Genoese, 2
 German immigrants, 79
 Germany, 30
 Gettysburg, Battle of, 96
 Gibson, Capt., 96
 Gilbert, Walter, 145
 Girard, Stephen, 46, 85
 Gloucester, N. J., 2, 118, 119, 162, 200, 225
 Gloucester Beach, N. J., 161
 Gloucester Point, N. J., 27, 195
 Glück, B., artist, 100
 Godyn, Samuel, 2, 6
 Gondolas (row-galleys), 23, 28
 Gould, Howard, 167
 Grand Union flag, 25
 Gray's Ferry (Lower Ferry), 57
Great Eastern, steamship, 105
 Greenwich, N. J., 23, 27, 205, 206, 207, 233
 Greenwich Point, Phila., 193, 222
Greyhound, brig, 27
 Grice, Francis, 49
 Grice, Joseph, 49
 Gridley, Capt., 172
Grip, tender, 2
Guerriere, American frigate, 49
 Gulf of Mexico, 138

 Haiti, 38
Half Moon, ship, 4
 Hall, J. W. & Son, 124
 Hamilton, Edward P., 28
 Hamilton, Capt. John, 47
 Hancock, Judge William, 231
 Hancock, N. Y., 218
 Hancock's Bridge, N. J., 26, 231
 Hancock's House, 231
 Harbor of refuge, Lewes, 236
 Harding, John, 14
 Harlan & Hollingsworth Company, 95, 97, 99, 102, 113, 125-129, 140, 160, 167, 168, 199
 Harriman, Averill, 174
 Hawks Nest Road, 218
 Hazelwood, Commodore, 32
 Heap, George, 18
 Hen and Chickens Shoals, 237
 Henry, E. L., artist, 74
 Hessians, 25
 Hill, I. W., artist, 72
 Hill, W., & Smith, 98
 Hoboken, N. J., 52, 61, 73
 Hodge, William, & Co., 47
 Hog Island, 174, 179, 180, 182-184, 199, 226
 Holland, 2, 3, 13
 Holloway, Thomas, 69

 Hopkinson, Francis, 34
Hornet, Continental sloop, 24
 Horse ferry, 58, 60
 Horseshoe crabs, 206
 Howe, Admiral Richard, 25
 Howe, Sir William, general, 25
 Hudson, Henry, 1, 2, 4
 Hudson river, 7, 13, 52, 64, 147, 173, 191, 215
 Hudson valley, 2
 Huggins, Capt. Benjamin, 85
 Humphrey, Joshua, 38, 43, 48
 Hurley, Edward, 173

 Ice harbors, 79, 139
 Ice jams, 160, 161
 Ice on the river, 79, 139
 Ice piers, 82
 Ice skating, 83, 139
Illinois, steamship, 113
 "Incode!" (Interstate Commission of the Delaware River Basin), 217, 240
Indiana, steamship, 113
 Indian canoe, 53
 Indian pilots, 81
 Indian names, 9, 133
 Indians, 1, 2, 10, 15, 18, 51, 223
 Industry, concentration of, 1
 Inman & International Line, 113, 169
 Inness, George, artist, 103, 115
Iowa, U. S. battleship, 133, 134
 Ireland, 16, 130
 Irish immigrants, 41, 79
 Ironclads, 96, 97
 Ironclad, first seagoing, 107
 Iron Pier, Lewes, 138

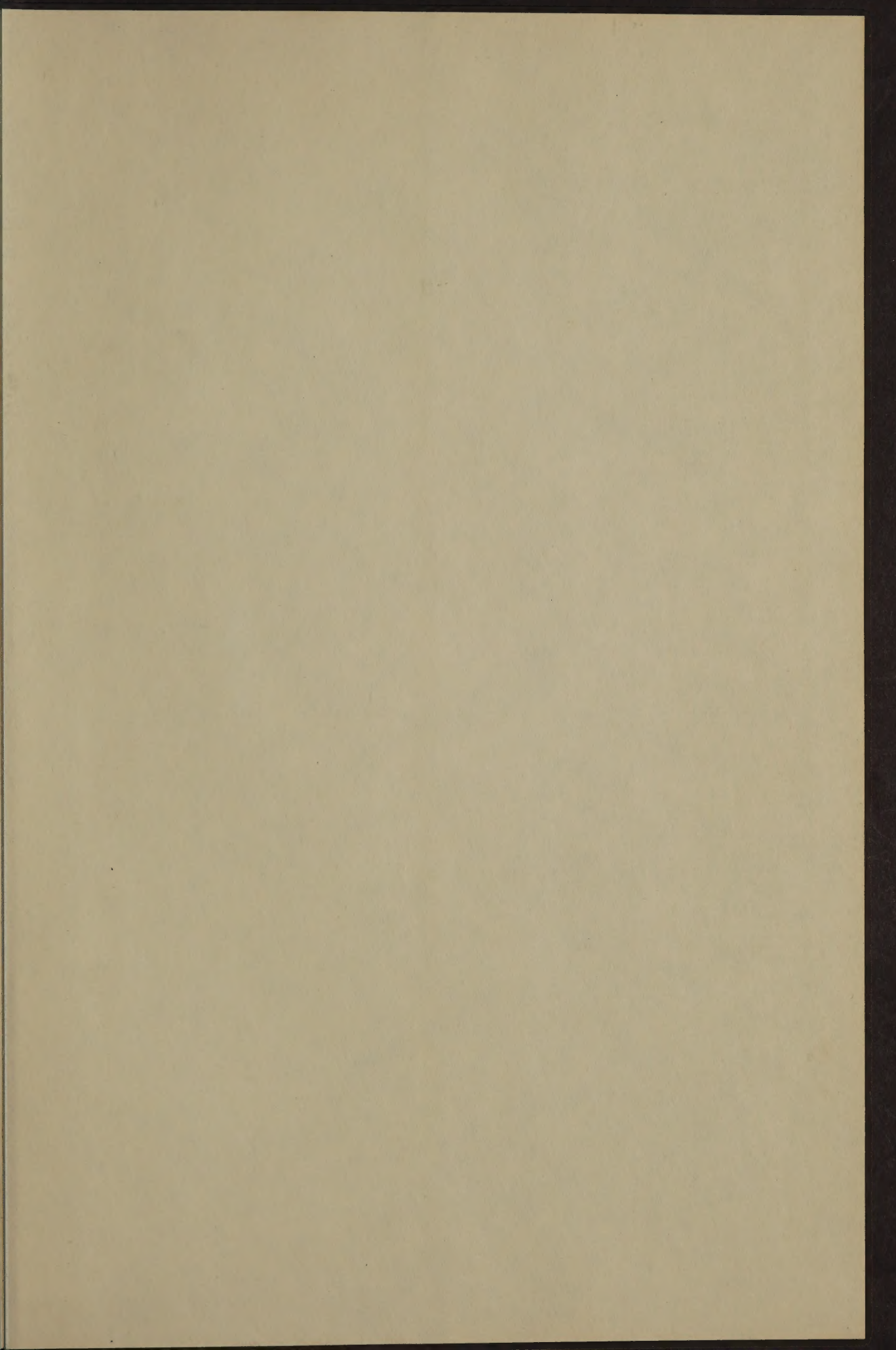
J. Hammitt Lake, watch boat, 208
J. Henry Edmunds, pilot schooner, 158
J. V. Craven, steamboat, 136
 Jackson & Sharp Company, 114, 140, 181, 184, 187-189, 199
 Jackson, Stonewall, 96
 Jamestown, Va., 13, 16
 Jeffreys, T., 18
 Jersey, Channel Island of, 13
John A. Warner, steamboat (later *Burlington*), 125, 126
John Boulton, ship, 107
 "John Bull," locomotive, 74
 Johnson, Amandus, 10
José Gonzales, tugboat, 129
Juanita, schooner, 165

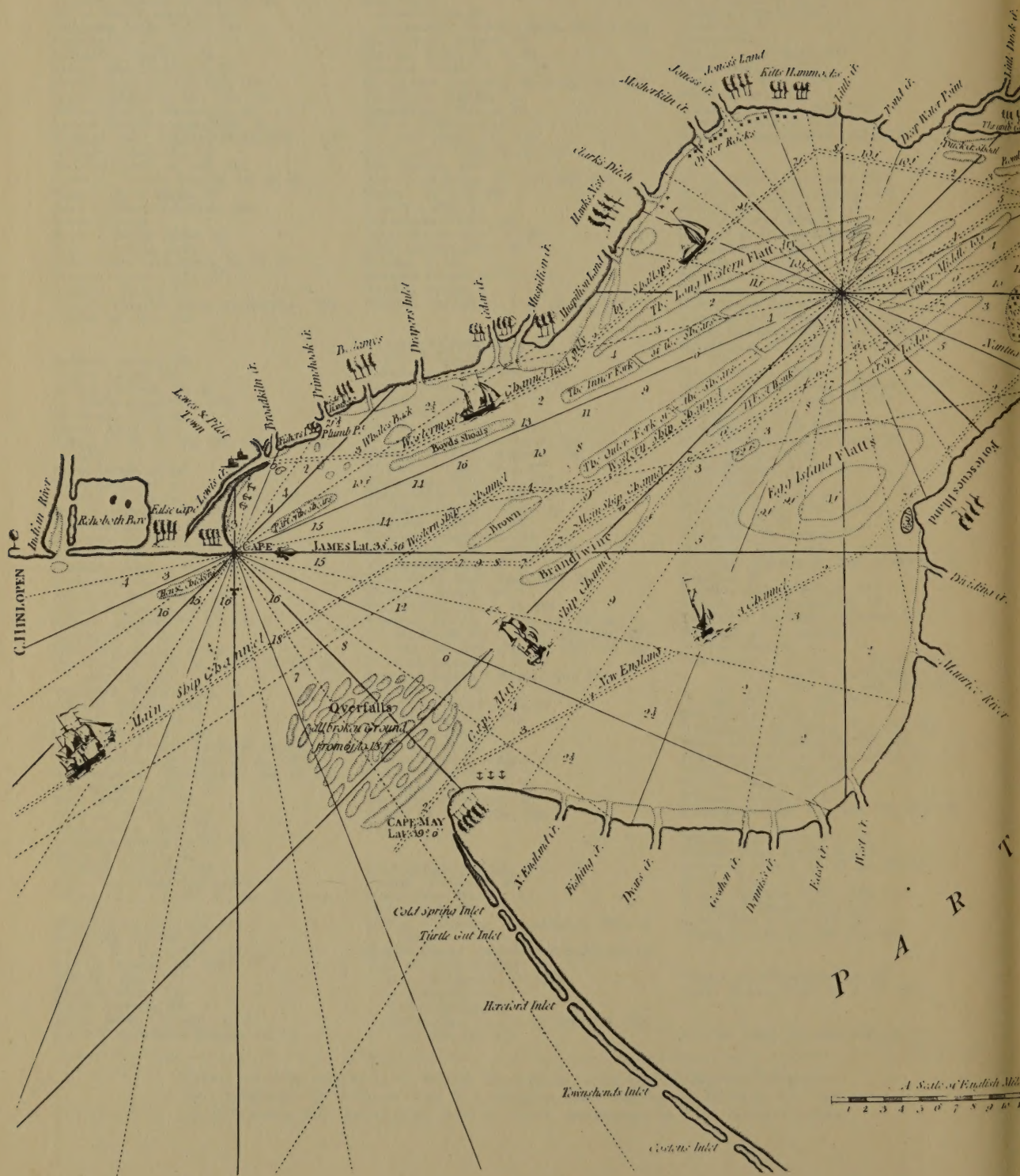
Kalmar Nyckel (Key of Kalmar), ship, 2, 4
 Kansas City, Kansas, 174
Kennebec, steamboat, 104, 105
 Kennedy, D. J., artist, 72, 85, 87, 104, 108
 Kensington, Phila., 14, 18, 132, 224
 King crabs (horseshoe crabs), 119, 206
Kingfisher, British sloop-of-war, 24
 Kittatinny Hotel, 141
 "Knockabouts," sailboats, 144
 Köllner, August, artist, 77, 117

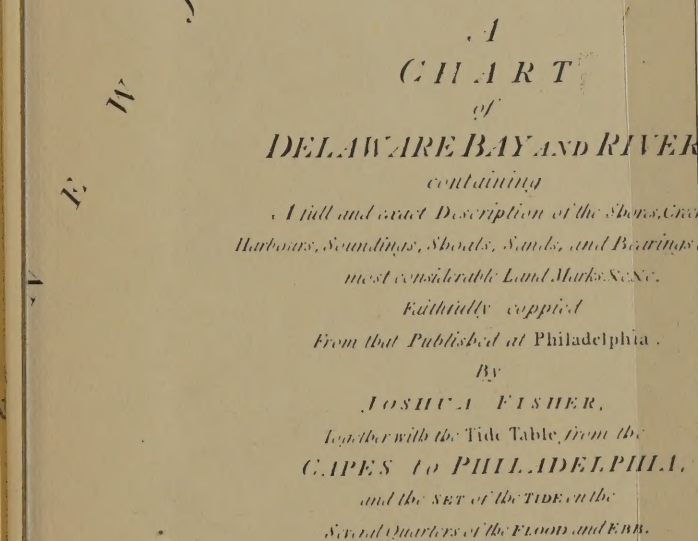
 Lackawaxen, Pa., 147, 148, 215, 218
 Lambertville, N. J., 221
Lancaster, ship, 47, 79, 86
 "Larks," sailboats, 144
 "Lazaretto" (Quarantine), 84
 League Island, 97, 108, 151, 174
 League Island Navy Yard, 192
 Le Blanc, artist, 40
 Lea mills, 42
 Leesburg, N. J., 202, 211
 Leghorn, Italy, 45
 Lehigh Canal, 77, 215
 Lehigh river, 10, 50, 64, 149
 Lenape (Lenni-Lenape) Indians, 10, 103
 Leutz, Emanuel, artist, 25, 30
 Lewes, Del., 2, 14, 15, 22, 24, 81, 138, 139, 145, 156, 157, 163, 216, 233
 Lewis, Henry F., 93
 Lewis, John F., 49

- Lewiston (*see* Lewes)
Lexington, brig, 29
Lexington, Continental brig, 23, 24
 Lighthouses, 79
 Lincoln, Abraham, 96
 Lindeström, Peter, 8, 9, 10, 11, 108
 Liston house, 231
 Liston's Point, Del., 216, 231
 Little Creek, Del., 202
 Little Delaware (West Branch), 218
 Liverpool, England, 80, 89, 113
Liverpool, British frigate, 24, 28, 31
 Liverpool Packet Line, 86
 Livingston, Robert R., 61
 Log cabins, 2
 London, England, 34, 80
 Londonderry, North of Ireland, 41
 Long's boatyard, Salem, N. J., 233
 Lore, Frank, blacksmith, 203
 Love Point, Maryland, 145
Lovely Matilda, ship, 85
 Lower Ferry (Gray's Ferry), 57
 Loyalists (Tories), 23, 26, 231
Lucy Ann, whaleship, 92, 93
- M. S. Dollar*, steamship, 171
Mac Fowler, motorized schooner, 234
 McHenry, George & Co., 89
 McKonkey's ferry, 25
Macedonian, British frigate, 48
 Maine, state of, 99
Major Reybold, steamboat, 124, 125
 Manila, Battle of, 172
Manitou, clipper ship, 94
 Marcus Hook, 139, 165, 176, 227
Margaret Fowler, motorized schooner, 234
 Marina, Cape May City, 237
 Marine Committee of Continental Congress, 23
 Marine Terminal, Wilmington, 229
 Maritime Exchange signal station, 138
 Market Street, Phila., 52, 60, 71, 72
 Market Street bridge, Wilmington, 42, 102
 Market Street bridge (Middle Ferry), Phila., 57, 194
 Mars engine works, 56
 Marseilles, France, 85, 88
 Martin, John F., 92
 Martin, William A. K., artist, 107
Mary Morgan, steamboat, 128
 Maryland, state of, 13, 65, 95
 Mason and Dixon's Line, 95
 Mason, S., Jr., 142
 Massachusetts, state of, 23
Massachusetts, U.S.S., 170
 Masthope, Pa., 116
 Matter, G., artist, 98
 Maurice River, N. J., 136, 203, 234
 Menhaden boats, 156
 Merchant Shipbuilding Corp., 174
Merlin, British frigate, 31, 36
 Merrick & Sons, 97, 107
Merrimac, 96, 97
 Merritt-Chapman & Scott Corp., 214
 Mexico, 99
 Mey, Cornelius, 2
 Middle Ferry bridge (*see* Market Street bridge), Phila.
 Mifflin, Thomas, 32
 Milford, Del., 134, 135, 137, 166, 200
 Miller, Capt. Wyatt, 205
 Minisink Ford, N. Y., 148, 218
 Minuit, Peter, 2
 Minsi (Minisink) Indians, 10
 Mispillion river, 134
Mohawk, Coast Guard cutter, 236
Monitor, U.S.S., 96, 97
Monongahela, ship, 79, 88
Montezuma, ship, 79
 Montgomery, Elizabeth, 35
 Montgomery, Capt. Hugh, 25, 85
 Montreal, Canada, 174
 Moore, Enoch (E. C. Moore Co.), 102, 135
 Moreau, Gen. Jean V., 38
 Morgan Iron Works, N. Y., 131
 Morgan Line, 128
- Morris, Robert, 29, 37, 46
 Morris Canal, 149
 Morrisville, Pa., 38, 64, 149, 199, 215, 222
Morro Castle, steamship, 209
 Morse, H. G., 140
 Mott, Edwin D., artist, 219
 Mud Island, 24, 31, 32, 36, 225
 Muskrat trapper, 235
 Municipal Dock, Trenton, 190
- Nancy*, brig, 24, 25, 35
 Nantuxet Creek, N. J., 203
 Narrows, near Riegelsville, 117
 Navy Yard, Norfolk, 90
 Navigation Acts, 37
 Navy, U.S., 38, 96, 97, 114, 140
 Navy Yard, Phila. (*see* Philadelphia Navy Yard)
 Navy Yard Shiphouse, 72, 84
 Naval Air Station and Training Center, Cape May, 185
 Neafie & Levy, 114
 New Amstel, 13
 New Amsterdam, 2, 3, 11
 New Bedford, Mass., 80
 New Castle, Del., 1, 3, 12, 13, 14, 15, 24, 37, 40, 63, 65, 69, 82, 112, 125, 139, 154, 155, 174, 196, 214, 231
 New Castle & Frenchtown Railroad, 63, 66
 New Castle ice harbor, 163
 New Castle-Pennsville Ferry, 200, 213
 New England, 138
 New England settlers at Cape May, 237
 New Hope, Pa., 148, 215
New Ironsides, Federal ironclad, 97, 107
New Jersey, ferryboat, 102
New Jersey, steamboat, 52
 New Jersey, state of, 1, 13, 25, 26, 51, 53, 63, 96, 103, 116, 122, 149, 150, 213, 216, 219, 223, 231
 New Jersey coast, 24, 209
 New Jersey flats, 151
 New Jersey Turnpike bridge, 200, 216, 223
 New Line, 80
 New Sweden, 3, 5, 10, 11
 New York, N. Y., 1, 2, 13, 14, 15, 26, 87, 50, 63, 64, 68, 80, 104, 105, 113, 130, 140, 173, 199, 213, 216
 New York packets, 79
 New York Shipbuilding Co., 140, 171, 182, 186, 199
 New York, state of, 52, 61, 218, 219
 Newark, N. J., 149
 Newport, N. J., 203
 Newport, R. I., 14, 42, 106
 Newport News, Va., 90
Niagara, steam yacht, 167
 Niagara Falls, 147
 Norfolk, Va., 113
 North River, 1
 North Sea, 192
Nourmahal, steam yacht, 167
- Ohio*, steamship, 113
 Old Swede's Church, Phila., 43
 Old Swede's Church, Wilmington, 19
 Old Point Comfort, Va., 105
Olympia, U. S. cruiser, 172
Orpheus, British frigate, 24
 Orukter Amphibolos, "Amphibious digger," 55
 Otis, Bass, artist, 42
Overfalls Lighthouse, 237
 Oyster boats, 204
 Oyster schooners, 118, 202, 204, 233
- PC-1258 (Submarine chaser), 212
 Packet Alley, New Castle, 154, 231
 Parliament, English, 13
 Parsons, William, 207
 Pea Patch Island, 95, 111
 Peace of Ghent, 63
Pearl, British frigate, 31
 Pelligrue, Honore, artist, 88
Penn, steamboat, 177
- Penn, William, 10, 13, 14, 16-18, 223
 Pennell, Joseph, artist, 118, 119, 198
 Pennsbury Manor, 223
 Penns Grove Ferry, 173
 Pennsville, N. J., 174
 Pennsylvania, state of, 13, 20, 23, 24, 26, 32, 37, 50, 53, 64, 65, 173, 199, 218, 219, 223
Pennsylvania, steamship, 113
Pennsylvania, U.S.S., 91
 Pennsylvania Railroad, 112, 113, 222
 Pennsylvania turnpike, 200
 Pennsylvania Navy, 32
Penobscot, steamboat, 104, 105
 Penrose Avenue bridge, 226
 Penrose warehouse, 85
 Perth Amboy, N. J., 15, 74
 Peterson, Ivan, 4
 Petty Island, 103
 Philadelphia, Pa., 1, 14, 15, 16-19, 23, 25, 26, 27, 29, 32, 35, 37, 38, 40, 44, 46, 47, 50, 51, 54, 60-62, 63, 64, 65, 66, 69, 70, 74, 75, 79, 80, 82, 85, 88-90, 94, 95, 97, 98, 102, 104, 105, 112, 113, 114, 117, 118, 125, 127, 129, 132, 136, 137, 173, 176, 199, 216, 223, 239, 240
Philadelphia, American frigate, 43, 45
Philadelphia, gondola, 23
Philadelphia, pilot steamboat, 159
Philadelphia, present-day pilot boat, 236
Philadelphia, steamboat, 64, 70
 Philadelphia Airport, 226
 Philadelphia-Camden bridge, 117, 174, 194, 198, 200, 214
 Philadelphia City Council, 48, 59
 Philadelphia fishing clubs, 103
 Philadelphia packets, 79
 Philadelphia Navy Yard, 71, 91, 108, 109, 168, 172
 Philadelphia shipbuilders, 23, 28, 38, 49
 Philadelphia, troops arriving at, 106
 Philadelphia waterfront, 39, 71, 83-85, 224
 Philadelphia, Wilmington & Baltimore Railroad, 63, 127, 129
 Phillipsburg, N. J., 149
Phoenix, ship, 87
Phoenix, steamboat, 52, 61, 64
Pilgrim, steamboat, 131
 Piloting, 81, 159
 Pilots Association for the Bay and River Delaware, 159, 236
 Pirates, 15, 22
 Pittsburg, Pa., 140
 Ployden, Lord, 7
 Point Breeze, N. J., 50
 Point Pleasant, Pa., 77, 148
Polly, ship, 23, 27
 Pope, Col. Charles, 26
 Port Delaware, N. J., 149
 Port Jervis, N. Y., 64, 215, 218, 219
 Port Norris, N. J., 203, 204
 Port Royal, S. C., 110
 Portland, Pa., 219
 Portuguese, 2
Princeton, U.S.S., 109
 Printz, Gov. Johan, 3, 5, 10
 Privateers, 15, 96
 Proprietors of West Jersey, 195
 Pusey & Jones Co., 102, 114, 121, 124, 199
- Quakers, 13, 15, 16, 22, 68
 Quaker City (Philadelphia), 26
 Quarantine Station, 84
 Quebec-Labrador ore fields, 222
 Queen, J., artist, 101, 106
Queen Anne, steamboat, 145
 Queen Anne pier, 145, 156
Quistconck, steamship, 183
 Quincy, Mass., 176
- "Raceabouts," 144
 Rafting, 113, 115, 116, 139, 215
 Railroads, 1, 64, 113, 174
 Rail bird shooting, 122
 Reaney, Son & Archbold, 114, 129, 130
 Red Bank Battlefield National Park, 225

- Red D Line (Dallett Line), 107
 Reed, John, 204
 Reedy Island, 24, 173
 Rehoboth, Del., 95, 146
 Relief, lightship, 237
 Reprisal, Continental ship, 24
 Republic, steamboat (later *Cape May* and also *Dreamland*), 126, 127
 Retvizan, Russian battleship, 169
 Rhode Island, state of, 42
 Ridgeway Park, Phila., 151
 Riegelsville, Pa., 117
 Risbrough, Capt. J., 45
 Rising, Gov. John, 3, 11
 Roach, John, 97, 114, 130, 131
 Roach's Shipyard, 131, 140, 168
 Robert Morris, steamboat, 69
 Robert Stockton, steamboat, 69
 Rodman, Rear Admiral Hugh, 192
 Rodney, Caesar A., 23
 Roebing, John A., 147, 218
 Roebuck, British frigate, 23, 28, 31
 Rogers, Capt. Moses, 52
 Rosa Lambert, schooner, 165
 Route 97, 218
 Roux, Antoine, artist, 85
 Roux, Frederic, artist, 87
 Row-galleys (gondolas), 24, 28, 31
 Rozana, steam yacht, 153
 Rumsey, James, 54
 Russell, Maurice River shipbuilder, 136
 Russia, 38, 169, 206
- Sailboat racing, 121
 Sailing canoe, 144
 Sailing packets, 15, 63
 St. Louis, steamship, 169
 St. Mary's Hall, 76
 Salem, Mass., 37
 Salem, N. J., 14, 68, 123, 125, 136, 200, 233
 Salem Creek, 25, 26
 Salem Oak, 68
 Samuel M. Felton, steamboat, 127, 129
 San Francisco, Calif., 172
 Sandoval, Spanish gunboat, 171
 Santiago, Battle of, 133, 170, 171
 Saratoga, U.S.S., 182, 183
 Sartain, John, artist, 19, 35
 Savannah, Ga., 80
 Savannah, steamship, 52
 Schell, F. Cresson, artist, 94
 Schley, Admiral W. S., 170
 Schuylkill "Navy," 120
 Schuylkill railroad bridge, 57
 Schuylkill river, 2, 13, 14, 52, 55, 62, 64, 120, 174, 226
 Schuylkill Waterworks, 70
 Schwab, Charles, 140
 Scourge, U.S.S., 99
 Sea Breeze, N. J., 125
 Senegalais, French destroyer escort, 210
 Sewels Point, Cape May, N. J., 185
 Shackamaxon (Kensington), 14, 18, 224
 Shackamaxon, ship, 89
 Shad skiffs, 155, 196
 Shallops, 15, 42, 63, 75
 Sharp, Capt. John, 136
 Sharpless dyewood mills, 152
 Shaw, R., artist, 65
 Sheffield, England, 138
 Ship John Shoal Light, 201
 Shipbuilding, 15, 23, 95, 96, 113, 114, 199
 Shipyard workers, 182, 186
 Shipyards, 22, 102, 132
 Smith, W. E., artist, 71
 Smith's Island, 84, 151
 Smyrna, Del., 136
 Smyrna river, 136
 South America, 87
 South River (Suydt), 1, 2
 South (Confederate States), 95, 96
- Southern privateers, 97
 Southwark, Phila., 43
 Spain, 50, 139, 171, 199
 Spanish American War, 140, 168
 Spanish privateers, 15, 231
 Spanish warships, 172
 Stagecoaches, 15, 64, 74
 States-General of Holland, 3
 Steamboats
 invention of, 51
 competition with railroads, 63, 113, 174
 Stephenson, Robert, 74
 Stevens, John, 52, 61, 64
 Stevens, Robert L., 64, 73
 Stockadoes (chevaux de frise), 83, 225
 Stockholm, Sweden, 10
 Strickland, William, 20
 Stuart, Gilbert, artist, 29
 Sturgeon skiffs, 156, 196
 Stuyvesant, Peter, 3, 11, 12
 Sub-chasers, 181
 Sun Shipbuilding Co., 119, 227, 228
 Sunoco refinery, 227
 Superior, ship, 47
 Surveilliers, Count, 50
 Susquehanna river, 50, 63
 Susquehanna, ship, 79
 Sweden, 2, 11
 Swedish Consul, Phila., 110
 Swedish names, 9
 Swedish settlers, 2, 3, 7, 12, 19, 229
- Tacony (Philadelphia), 64
 Tacony-Palmyra bridge, 200
 Tammany Fish House, 103
 Tasker Iron Works, 112, 155
 Teach, Edward, 22
 Team ferries, 58
 Thistle, racing yacht, 121
 Thomas Clyde, steamboat, 164
 Thomas M. Seeds, sailboat, 145
 Thomas P. Cope, ship, 86
 Thompson, William J., 195
 Thompson's Hotel, 162
 Timber for shipbuilding, 15
 Tinicum Island, 3, 84
 Tinicum, steamboat, 131
 Tonawanda, U.S. monitor, 168
 Tonawanda, ship, 87
 Town Bank bluff, Cape May, 237
 Treasure Island, 190
 Treaty Elm, 14, 18, 43, 224
 Trenton, N. J., 1, 6, 9, 14, 25, 29, 30, 53, 54, 63, 77, 101, 112, 125, 126, 139, 143, 150, 160, 171, 173, 190, 215, 217
 Trenton, steamboat, 75
 Trenton Delaware Bridge Co., 112
 Trenton falls, 77
 Tripolitan corsairs, 38, 45
 Tri-State Marker, 219
 Tryphena, brig, 48
 Tuckup, sailboat, 145
 Turkey Tribe (Indians), 10
 Turtle Gut Inlet, 24
 Tuscarora, ship, 79, 86
 Twilight, steamboat, 160
 Tygert, J. E., & Co., 136
 Tyler, P. B., 69
- Unalachtigo (Indians), 10
 Unami (Indians), 10
 Union Iron Works, 172
 Union Line, 73
 Union Volunteer Refreshment Saloon, 106
 United States, American frigate, 38, 48
 U.S. (United States)
 Army Engineers, 216, 239
 Congress, 30, 114
 Custom House, 82
 Government, 81, 95, 97, 108, 132, 138, 139, 173, 174, 178
- Immigration Station, 195
 Navy, 91, 109, 168
 Shipping Board, 173
 United States Shipbuilding Corp., 140
 U.S. Steel Corp., 214, 216, 222
 University of Delaware Laboratory, 238
 Upland (Chester), 13
 Valley Forge, Pa., 26, 231
 Van Assum, H. G., 4
 Venezuela trade, 107
 Venetians, 2
 Verrazano, 1
 Vesper, canal boat, 151
 Vesta, steamboat, 52
 Vicksburg, Miss., 239
 Vigilant, sloop, 26
 Vingboons, Joan (Johannes), 6
 Virginia, state of, 7, 13, 22
 Volunteer, iron racing yacht, 121
- W. L. Douglas, schooner, 176
 W. W. Ker, pilot schooner, 158
 War of 1812, 38, 47, 48, 49
 Walnut Street Wharf, Phila., 73
 Walters & Son, artists, 88
 Warner Hotel, 125
 Warner Line, 63
 Washington, city, 38, 95, 199
 Washington, George, 25, 26, 31, 46
 Washington, ferryboat, 213
 Washington's Crossing, 215, 221
 Wasp, Continental sloop-of-war, 24
 Water Gap, 1, 10, 60, 103, 115, 141, 215, 219
 Water Street, Phila., 16
 Waterways Experiment Station, 239
 Wayne, Gen. Anthony, 26, 231
 Weehawken, N. J., 148
 Welcome, ship, 13, 14
 Wells, Gideon, Sec. of Navy, 96
 West, Benjamin, 18
 West, Thomas, 7, 13, 16
 West Branch, 218
 West Indian trade, 46
 Wheaton, Capt. John, 205
 Wherries, 53, 83
 Whitefield, E., artist, 77
 Whitman, Walt, 162
 Whitney, William C., Sec. of Navy, 140
 Wiccaco, 19
 Wignal, sailboat builder, 145
 William Penn, steamboat, 74
 William R. Steelman, schooner, 158
 Williams, C. F., artist, 89
 Willing, Thomas, 46
 Wilmington, Del., 1, 2, 4, 8, 14, 24, 37, 41, 47, 52, 63, 64, 80, 82, 92, 95, 100, 102, 113, 127, 129, 140, 173, 174, 199, 215, 216, 229, 231
 Wilmington, ship, 41
 Wilmington Steamboat Co., 127, 173
 Wilmington Whaling Co., 80, 92
 Wilmington-Penns Grove Ferry, 173, 200
 William Penn, ship, 89
 Wilson, Horace, 127
 Wilson, Joseph S., 127
 Wilson Line, 127, 173, 175, 176, 199, 200, 213
 Wilson, Mrs. Woodrow, 183
 Wilson, Pres. Woodrow, 183
 Windmill Island, 14, 39, 59, 60, 73
 Winsor Line, 113
 Wood, Dialogue & Co., 162
 Woodland Beach, Del., 124
 World War I, 173, 192, 227
 World War II, 24, 199, 213, 227
- Yellow fever epidemic, 38, 84
 York, James, Duke of, 7, 13, 16
- Zwanen Dael (Swanendael), 2, 6







DELAWARE BAY AND RIVER

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Bv

JOSHUA FISHER.

*Together with the Tide Table, from the
CAPES to PHILADELPHIA.*

and the SET of the TIDE on the
 great Quarters of the FLOOD and EBB.

TIDE-TABLE.

	<i>S.E. by E.</i>		<i>Cape May.</i>
Moon -	<i>S.E.</i>	<i>(makes Full Sea at</i>	<i>Cape John.</i>
	<i>S.S.E.</i>		<i>Bumble Back.</i>
	<i>S. by E.</i>		<i>Rocky Island.</i>
	<i>S.</i>		<i>New York.</i>
	<i>S.W.</i>		<i>Chesler.</i>
			<i>Philadelphia.</i>

Setting of the Tide within the Bay, near the Capes.

First Quarter Blvd. N.V.W.

Sixth West Quarter, N.W.

First Quarter Ebb. *E.S.F.*

Sent to last Quarter. S.S.E.

The Soundings are taken at Low Water, these marked $\times$ are Foul S.

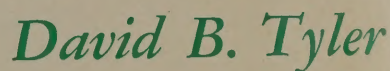
these without scr. Fathoms.

At Spring Tide the Flow is from 0

67, Fed. Rep. Tables from 1st to 5th

but varied by the Winds.

Leopoldine Herkules, in: Biographische Notizen über die Vorfahren, 1798, 1800, 1802, 1804, 1806, 1808, 1810, 1812, 1814, 1816, 1818, 1820, 1822, 1824, 1826, 1828, 1830, 1832, 1834, 1836, 1838, 1840, 1842, 1844, 1846, 1848, 1850, 1852, 1854, 1856, 1858, 1860, 1862, 1864, 1866, 1868, 1870, 1872, 1874, 1876, 1878, 1880, 1882, 1884, 1886, 1888, 1890, 1892, 1894, 1896, 1898, 1900, 1902, 1904, 1906, 1908, 1910, 1912, 1914, 1916, 1918, 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, 1936, 1938, 1940, 1942, 1944, 1946, 1948, 1950, 1952, 1954, 1956, 1958, 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978, 1980, 1982, 1984, 1986, 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020, 2022, 2024, 2026, 2028, 2030, 2032, 2034, 2036, 2038, 2040, 2042, 2044, 2046, 2048, 2050, 2052, 2054, 2056, 2058, 2060, 2062, 2064, 2066, 2068, 2070, 2072, 2074, 2076, 2078, 2080, 2082, 2084, 2086, 2088, 2090, 2092, 2094, 2096, 2098, 2100, 2102, 2104, 2106, 2108, 2110, 2112, 2114, 2116, 2118, 2120, 2122, 2124, 2126, 2128, 2130, 2132, 2134, 2136, 2138, 2140, 2142, 2144, 2146, 2148, 2150, 2152, 2154, 2156, 2158, 2160, 2162, 2164, 2166, 2168, 2170, 2172, 2174, 2176, 2178, 2180, 2182, 2184, 2186, 2188, 2190, 2192, 2194, 2196, 2198, 2200, 2202, 2204, 2206, 2208, 2210, 2212, 2214, 2216, 2218, 2220, 2222, 2224, 2226, 2228, 2230, 2232, 2234, 2236, 2238, 2240, 2242, 2244, 2246, 2248, 2250, 2252, 2254, 2256, 2258, 2260, 2262, 2264, 2266, 2268, 2270, 2272, 2274, 2276, 2278, 2280, 2282, 2284, 2286, 2288, 2290, 2292, 2294, 2296, 2298, 2300, 2302, 2304, 2306, 2308, 2310, 2312, 2314, 2316, 2318, 2320, 2322, 2324, 2326, 2328, 2330, 2332, 2334, 2336, 2338, 2340, 2342, 2344, 2346, 2348, 2350, 2352, 2354, 2356, 2358, 2360, 2362, 2364, 2366, 2368, 2370, 2372, 2374, 2376, 2378, 2380, 2382, 2384, 2386, 2388, 2390, 2392, 2394, 2396, 2398, 2400, 2402, 2404, 2406, 2408, 2410, 2412, 2414, 2416, 2418, 2420, 2422, 2424, 2426, 2428, 2430, 2432, 2434, 2436, 2438, 2440, 2442, 2444, 2446, 2448, 2450, 2452, 2454, 2456, 2458, 2460, 2462, 2464, 2466, 2468, 2470, 2472, 2474, 2476, 2478, 2480, 2482, 2484, 2486, 2488, 2490, 2492, 2494, 2496, 2498, 2500, 2502, 2504, 2506, 2508, 2510, 2512, 2514, 2516, 2518, 2520, 2522, 2524, 2526, 2528, 2530, 2532, 2534, 2536, 2538, 2540, 2542, 2544, 2546, 2548, 2550, 2552, 2554, 2556, 2558, 2560, 2562, 2564, 2566, 2568, 2570, 2572, 2574, 2576, 2578, 2580, 2582, 2584, 2586, 2588, 2590, 2592, 2594, 2596, 2598, 2600, 2602, 2604, 2606, 2608, 2610, 2612, 2614, 2616, 2618, 2620, 2622, 2624, 2626, 2628, 2630, 2632, 2634, 2636, 2638, 2640, 2642, 2644, 2646, 2648, 2650, 2652, 2654, 2656, 2658, 2660, 2662, 2664, 2666, 2668, 2670, 2672, 2674, 2676, 2678, 2680, 2682, 2684, 2686, 2688, 2690, 2692, 2694, 2696, 2698, 2700, 2702, 2704, 2706, 2708, 2710, 2712, 2714, 2716, 2718, 2720, 2722, 2724, 2726, 2728, 2730, 2732, 2734, 2736, 2738, 2740, 2742, 2744, 2746, 2748, 2750, 2752, 2754, 2756, 2758, 2760, 2762, 2764, 2766, 2768, 2770, 2772, 2774, 2776, 2778, 2780, 2782, 2784, 2786, 2788, 2790, 2792, 2794, 2796, 2798, 2800, 2802, 2804, 2806, 2808, 2810, 2812, 2814, 2816, 2818, 2820, 2822, 2824, 2826, 2828, 2830, 2832, 2834, 2836, 2838, 2840, 2842, 2844, 2846, 2848, 2850, 2852, 2854, 2856, 2858, 2860, 2862, 2864, 2866, 2868, 2870, 2872, 2874, 2876, 2878, 2880, 2882, 2884, 2886, 2888, 2890, 2892, 2894, 2896, 2898, 2900, 2902, 2904, 2906, 2908, 2910, 2912, 2914, 2916, 2918, 2920, 2922, 2924, 2926, 2928, 2930, 2932, 2934, 2936, 2938, 2940, 2942, 2944, 2946, 2948, 2950, 2952, 2954, 2956, 2958, 2960, 2962, 2964, 2966, 2968, 2970, 2972, 2974, 2976, 2978, 2980, 2982, 2984, 2986, 2988, 2990, 2992, 2994, 2996, 2998, 3000, 3002, 3004, 3006, 3008, 3010, 3012, 3014, 3016, 3018, 3020, 3022, 3024, 3026, 3028, 3030, 3032, 3034, 3036, 3038, 3040, 3042, 3044, 3046, 3048, 3050, 3052, 3054, 3056, 3058, 3060, 3062, 3064, 3066, 3068, 3070, 3072, 3074, 3076, 3078, 3080, 3082, 3084, 3086, 3088, 3090, 3092, 3094, 3096, 3098, 3100, 3102, 3104, 3106, 3108, 3110, 3112, 3114, 3116, 3118, 3120, 3122, 3124, 3126, 3128, 3130, 3132, 3134, 3136, 3138, 3140, 3142, 3144, 3146, 3148, 3150, 3152, 31



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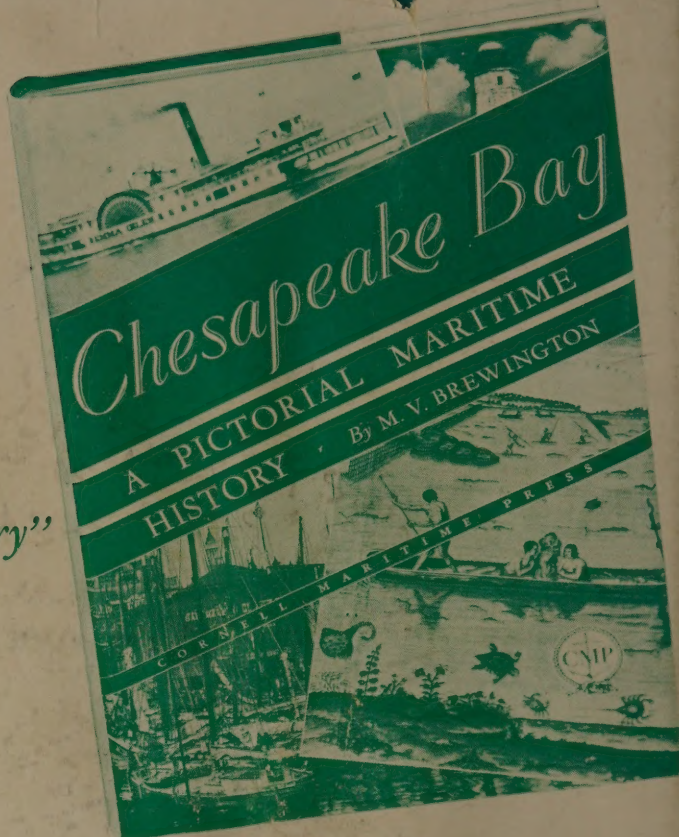
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